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THE UNIVERSITY OF ALBERTA

INTERORGANIZATIONAL LINKAGES IN A COOPERATIVE EDUCATION PROGRAM

by

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A THESIS

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This thesis is dedicated to

the memories of

Vyda Marie Loewen

and

Peter Isaac Loewen

ABSTRACT

This is a descriptive case study in which dimensions of inter-organizational linkages in a Cooperative Education program were measured using a detailed questionnaire. The questionnaire was adapted from the Organizational Assessment Instrument which was developed by Van de Ven (1980). It includes items which are related to situational, structural, and process variables. These are variables which Van de Ven included in his framework for organizational assessment. The framework is built on the work of Guetzkow, Marrett, and other researchers in the area of interorganizational linkages.

Five stakeholder groups in the Cooperative Education (Co-op) program were surveyed. All of the members of four of the groups were polled: These were the Co-op program administrators, the members of the faculty with which the program was involved, the department chairmen of the faculty, and the students in the Co-op program. The fifth group polled was the employers. One representative of each employing organization responded on behalf of his employer.

The following factors must be considered in the interpretation of the findings; the potential number of respondents varied considerably for each group, the rate of response for each group was approximately 50 percent, the lowest rate of return was from the faculty, the program was in its first year of operation, and the study was part of an evaluation of the program.

The situational variables measured were interunit awareness, resource dependence and consensus. The structural variables measured were the amount, direction, and time spent in communication, ease of communication,

extent of formalization, and extent of influence. A mean for each of the stakeholder groups in each of these variables was calculated. In this study, the employers were seen to represent private sector agencies and the other stakeholder groups were in the public sector. Statistical analyses were conducted on the findings for the employers (private sector) and for the faculty (public sector).

Van de Ven has hypothesized that the structural variables can be explained largely by the situational variables and that the effectiveness of an interagency network can be predicted from the four structural dimensions and six situational factors.

It was found that there were more significant ($p < .05$) structural variables related to situational variables for the private sector agencies than there were for the public sector agencies. It was also found that for all groups studied, the variables which were most significantly related to the other variables measured were interunit awareness, formalization of the relationship, and interunit resource dependence.

The effectiveness of the Co-op program as perceived by the stakeholder groups was also measured. Analysis of faculty data indicate significant ($p < .05$) correlations between effectiveness and the linkage dimensions of resource dependence, awareness, formalization, and influence. Analysis of employer data indicate significant ($p < .05$) correlations between effectiveness and the linkage dimensions of resource dependence and influence.

These findings lend some support to Van de Ven's hypothesis that the effectiveness of an interagency network can be predicted from the four structural dimensions and six situational factors.

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Chapter I

INTRODUCTION, OBJECTIVES, AND RATIONALE FOR THE STUDY

The recognition and development of new concepts to describe the world around us more accurately advances society in its ability to develop, predict, control, and enhance civilization. Perhaps an example of such a concept will prove to be that of interorganizational linkages.

Early organizational studies reflected a concern with the internal workings of organizations whereas more recent studies focus on the relation of the organization to its environment. The need for organizations to interact with each other for the purpose of sharing or utilizing scarce resources or for the purpose of cooperating with other social organizations to fulfill a real or perceived social responsibility has resulted in the linking of some organizations together to a greater or lesser extent.

The concept of "linking" has considerable utility in explaining interorganizational relationships. The intensity, centrality, formalization, and structural complexity of the relationship are seen by Van de Ven (1980) as indicators of structure. These along with the process indicators of resource and information flows are measurable indices and comprise a framework within which interorganizational relationships can be analyzed. The utility of such an analysis may be in predicting program effectiveness and may facilitate realistic resource allocations and realistic expectations of participants.

Although a number of interorganizational studies have focused on linkages between organizations of a similar type, that is, public

sector or private sector, few, if any, have focused on linkages between private and public sector organizations.

Cooperative Education programs involve a practical work experience in conjunction with a formalized classroom learning requirement. The practical work experience is gained in worksites which may be in the public sector, such as in human service agencies, or it may be gained in the private sector, such as in industry. A Cooperative Education program in a faculty of engineering has work placements largely in industry. Hence, linkages in the program are between the public sector, namely, the learning institution and the private sector, industry.

Objectives of the Study

This is a study of selected interorganizational linkages (IR's) in a faculty of engineering Cooperative Education program. The objectives of the study were as follows:

1. To describe the linkages in a Cooperative Education program which involves both public and private sector organizations,
2. To determine the effectiveness of the program,
3. To explore the relationship between stakeholder objectives and perceived program effectiveness, and
4. To explore the possible association between linkages and program effectiveness.

Rationale for the Study

Due to limited resources and increasing demands from their environments, education systems have become increasingly open. Open systems are not sealed off from their environments, but are open to and

dependent on flows of personnel and resources from outside their own system (Scott, 1981:22). This openness is noted by Whetten (1981:82) in his observation that educators are experiencing a shift from short-term responsibility for allocation of resources and supervision of the production function, to long-term strategy formulation to ensure the political and economic viability of the organization, as a move to an open political orientation. Inherent in this shift is the existence of linkages to other organizations. These may or may not be human service organizations. Non-human service organizations differ from human service organizations in their reasons for existence. For example, human service organizations have as their mandate, the maintenance and improvement of the general well-being and functioning of people, whereas the primary concern of a non-human service organization may be the production of a material product or technology.

Different reasons for existence may result in a difference in goals and may be reflected in the level of, and reasons for, participation. Van de Ven (1980:301) posits that organizations participate in interorganizational relationships (IR's) to pursue their individual and collective interests.

The Cooperative Education program in the faculty of engineering at a Canadian university was selected as the focus of the study. This program involves linkages between public and private sector organizations. It is representative of an increasing trend in education programs to involve industry as an integral part of the program. As well, the goals and structure of the program are in keeping with similar programs in other Canadian universities. Hence, the findings may be useful to other Cooperative Education programs.

The Focus on Interorganizational Relationships

The focus on IR's facilitates the measuring of program effectiveness. Whether or not a Cooperative Education program is effective will be dependent upon the nature of interorganizational linkages of which the program is comprised. Assessment of any one unit or group of units involved would not be indicative of the health of the program since its essence is the interrelationship among units.

> ". . . IR's, like organizations, are not identified by membership but by their functional goals, role structure, and behavior as a social action system. Further, since the IR can act as a unit, this suggests . . . . that many behavioral acts and events of the IR cannot be explained simply in terms of analyzing the behavior of individual organizations that are members of the IR. Rather, these observable social facts are collective events that arise out of the actions of the social system and are formally a property of the IR itself."
>
> (Van de Ven, 1980)

Marrett (1971:85) defined interorganizational relationships (IR's) simply as a "variety of connections between groups." In narrowing the assessment of IR's to their relational properties, however, she identified the network--its traits and changes--as the unit for study. She defined this unit as the "characteristics of the connections between the actors."

Kenneth Benson (1975:230), in a discussion on interorganizational networks, observed that "the basic unit of analysis is the network of organizations," and "networks may be quite varied and their characteristics should be the objects of explanation."

In this study, the Van de Ven and Marrett definitions and the Benson assertion regarding interorganizational relationships facilitated the development of a model for measuring the effectiveness of a

Cooperative Education program by recognizing IR's as entities unto themselves.

Elements of a Cooperative Education Program

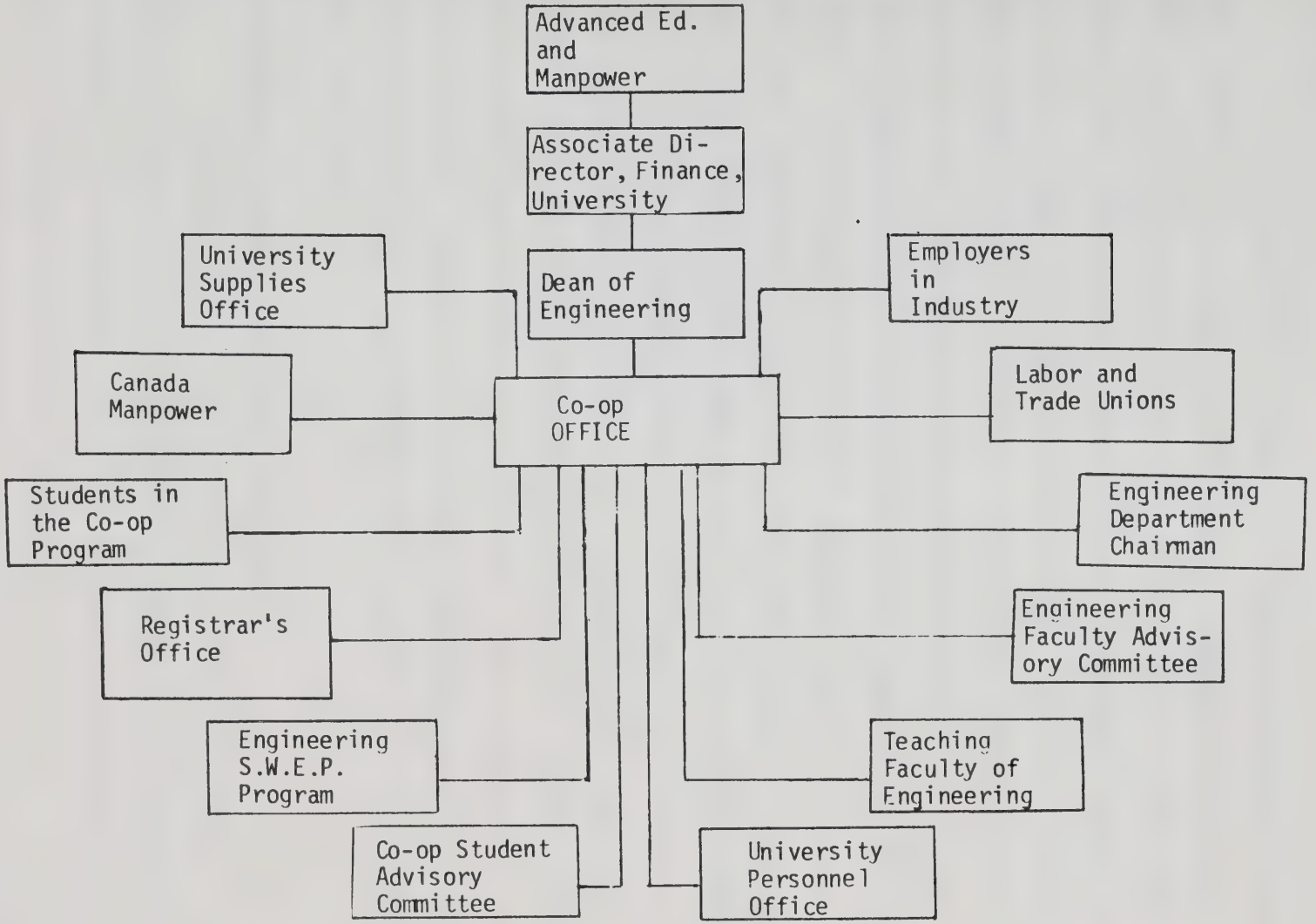
The major elements of the program are the stakeholders and the interorganizational relationships. The three main groups or organizations of stakeholders are the students, the educational institution, and the employers. A degree of liberty is taken with the term "organizations" in that educational institutions are organizations and employers are representatives of organizations, however, students are not organizations. Students are both the clients of, and participants in, the program. Some Cooperative Education programs have a mediating component which usually consists of the administrators of the program. This unit is regarded as the focal unit or organization because stakeholder groups interact through it to realize program goals. Other organizations are described as autonomous or non-autonomous, depending on whether or not they are dependent upon the funding agency of the program for their own resources. That is, the teaching faculty in the same university which funds the Cooperative Education (Co-op) program is non-autonomous. Employers in industry are autonomous in terms of their sources of resources.

Interorganizational relationships can be described in terms of their structure and their information and resource flows. Structure includes the formalization, centralization, intensity, and structural complexity of the relationship. Resource and information flows are the process aspects.

A Cooperative Education program involves many linkages. Figure 1 illustrates the groups with which a focal unit (the Co-op

Figure 1

UNITS INVOLVED IN THE COOPERATIVE EDUCATION PROGRAM



office) must interact to carry out its mandate of coordinating the program.

This study will be limited to IR's among the faculty, department chairmen, Co-op program administrators, students, and employers. This decision was based on a review of the literature in which repeated emphasis was placed on the importance of the relationship between the employers, students, and education institutions. Since the university program under study has a focal unit in the form of the Cooperative Education office, the study will essentially be of the dyads in the network operating between the four stakeholder groups and the focal unit.

The purposes for which the stakeholders are in the program vary with each stakeholder group, hence, so will their criteria of effectiveness of the program. While there may be a correlation between measures of relationship variables and program effectiveness, the perception of whether the program is effective or not varies with each stakeholder group. Each group is a participant in the program for specific reasons. These reasons are reflected in the objectives each group holds for being in the program. Therefore, in this study, each stakeholder group was given the opportunity to prioritize program objectives to reflect its own perceptions.

Assessment of Interorganizational Relationships

The assessment of IR's involves consideration of three dimensions, the first two of which are the process and the structural dimensions. These can be measured using a detailed questionnaire such as the one offered by Van de Ven (1980:483).

The specificity and detailed nature of the questionnaires used may be most appropriately applied when the researcher has a strong

mandate to make such an inquiry. The mandate for this study was included as a part of a total evaluation of the program.

The third dimension to be considered in an organizational assessment or part thereof, is that of time, as suggested by Hoy & Miskel (1982) in their proposed Integrated Goal and System Resource Model. For example, is effectiveness determined for the short, intermediate, or long-term. Scott (1982) also drew attention to the stage of the life cycle of the organization, another aspect of the "time" consideration. "Organizations are necessarily at different stages of their life cycle, and criteria appropriate for assessing effectiveness at one stage may be less so for another" (op. cit.:320).

The Cooperative Education program under study is in its first year of operation. The program is an organization. Any determination of effectiveness must be made in recognition of this fact.

GLOSSARY OF TERMS

The purpose of this glossary of terms is to provide a basis of common understanding.

Terms

1. Autonomous (types of organizations)

   Describes organizations which are not dependent on the university for their resources.

2. Cooperative Education

   The definition or description of what Cooperative Education is varies with the educational institution and the nature of the situation. However variously it is defined, either by the goals of the program or by formal definition, every Cooperative Education program involves a practical work experience in conjunction with a formalized classroom learning requirement. This means that the students alternate between periods of work in industry and periods of time in the learning institution. As well, every Cooperative Education program involves three principal stakeholder agents, the student, the formal learning institution, and the employer (business or industry). The key to the success of the program is directly related to the degree of cooperation between these three agents. The effectiveness of this cooperation is contingent upon the acceptance by the stakeholders of the goals of the program.

3. Dyads

   Groups of two units.

4. Focal Unit

   The coordinating or mediating unit (or organization) in the program.

5. Human Service Organizations

   Are differentiated from other bureaucracies by two fundamental characteristics: (a) their input of raw material are human beings with specific attributes, and their production output are persons processed or changed in a predetermined manner, and (b) their general mandate is that of "service", that is, to maintain and improve the general well-being and functioning of people. (Hasenfeld and English,1974:1)

6. Interorganizational Relationship (IR)

   As explained by Van de Ven (1976:299), "Occurs when two or more organizations transact resources (money, physical facilities and materials, customer or client referrals, technical staff services) among each other. An IR can be temporary or long-lasting."

7. Non-autonomous (types of organizations)

   Describes organizations which are a part of the university and are dependent on that system for their resources.

8. Organization

   An organization is a collectivity with a relatively identifiable boundary, a normative order, ranks of authority, communications systems, and membership coordinating systems. This collectivity exists on a relatively continuous basis in an environment and engages in activities that are usually related to a goal or a set of goals. (Hall, 1977:23)

9. Other Unit

   A unit which is part of the program and which interacts with other units in the program chiefly through the focal unit.

10. Private Sector Organizations

    Organizations whose source of funding is private enterprise.

11. Process is conceptualized as a flow of activities and refers to the direction and frequency of resources and information that actually flow between members (op. cit.:301).

12. Public Sector Organizations

    Organizations whose source of funding is the public sector.

13. Stakeholders

    Individuals or organizations who have an investment in the Cooperative Education program and who participate for the purpose of realizing self-interest as well as program goals.

14. Structure (in a social action system)

    Refers to the administrative arrangements that are established to define the role relationships among members. (Van de Ven, 1980:301)

Organization of the Study

Chapter I has introduced the concept of linking between organizations and has cited an area in which little research has been done, namely, interorganizational linkages between public and private sector organizations. The term interorganizational relationships (IR's) is used synonymously with the term interorganizational linkages. The role of interorganizational relationships in the educational milieu was established and was followed by four objectives of the study.

A rationale for selection of a university faculty of engineering Cooperative Education program was given. Limitations and delimitations to the study are included in the rationale. The framework for the study was alluded to in a discussion of the assessment of IR's. The chapter concludes with a glossary of terms to provide a basis of common understanding. The remainder of the study is organized as follows:

1. Chapter II presents a review of the literature which includes a description and discussion of interorganizational linkages, Cooperative Education, program effectiveness, and a brief description of the Cooperative Education program under study.
2. Chapter III describes the research design used for the study.
3. Chapter IV presents the questionnaire rate of returns and the demographic variables of the groups surveyed.
4. Chapter V reports the findings for the situational variables studied.
5. Chapter VI reports the findings for the structural variables studied.

6. Chapter VII reports the findings regarding program effectiveness.
7. Chapter VIII concludes the report with the conclusions, implications, and recommendations of the research.
8. The following information relevant to the study is included in the appendices:
   a. Letters to respondents.
   b. Questionnaires sent to each of the five groups surveyed.

Chapter II

REVIEW OF THE LITERATURE

This literature review includes a discussion of interorganizational linkages, Cooperative Education, program effectiveness, and it concludes with a brief description of the Cooperative Education program under study. The purpose of this review is to provide a theoretical framework for this study.

Interorganizational Linkages

"Interorganizational linkages" refers to the bonds (linkages) between an organization and entities in its environment. This is in keeping with open systems theory in which an organization receives input from its environment, processes it, and produces a product (output) back into the environment.

Although the study of interorganizational linkages is still in the early stages, a review of the literature revealed four key writers whose contributions have influenced research of the topic.

Guetzkow (1966) provided a framework for the study of relations among organizations. The utility of this framework is evident in the many subsequent studies which are built on the concepts and terms laid out in his framework. These will be noted throughout this review.

Guetzkow identified three classes of interaction among organizations:

1. those developing by virtue of the interpenetration of groups;
2. those deriving from the specialized roles and terms delineated to handle interaction across organizational boundaries; and

3. those growing from indirect mediation of supra-organizational processes.

(op. cit.:14)

He observed that interpenetration may occur in one organization by the physical invasion of the men and machines of another, by the diffusion of technology, by simultaneous membership in two organizations, and by "key leaders" who serve in the offices and committees of several organizations. He also identified ideological penetration such as propaganda and noted that, "Perhaps the most effective type of boundary penetration in terms of changing the goals of the organization being invaded is when the penetration involves both membership and ideology" (op. cit.:17).

Interaction at the boundaries of organizations occurs in several ways. Some organizations have special service units for interacting with the environment, for example, public relations and personnel offices. Guetzkow introduced the concept of the boundary spanner--the individual whose role is specifically to be a liaison between the organization and its environment.

In his discussion of interaction through supraorganizational processes, he alluded to loose-coupling, a concept later expanded upon by Weick (1976). Supraorganizational processes vary on a continuum representing the degree of interdependence among organizations from very loose arrangements to tightly bound associations.

The modes and media of interaction among organizations are indicators of the nature of interorganizational relationships. The first indicator is the institutionalization of the interaction. "Other things being equal, it would seem that the greater the frequency of interaction, the greater will be the degree of institutionalization of the relations among organizations" (op. cit.:24).

The forms of interaction have to do with the inclination of organizations toward autonomy (a fact inherent in the definition of an organization) and with the interdependencies among the organizations. Interdependency may take the form of cooperation (op. cit.:27) or, when there is interference in the activities of the other organization(s), it may be in the form of conflict.

Guetzkow conjectures on the frequency of occurrences of relations among organizations in the following table:

Table 1

CONJECTURES ON FREQUENCY OF
OCCURRENCES OF RELATIONS AMONG ORGANIZATIONS

These preconditions are presented by Whetton, 1981 in his paper entitled "Interorganizational Relations: A Review of the Field." Journal of Higher Education, Ohio State University Press, 52: No. 1.

Facilitation and interference often occur simultaneously among organizations and for this reason over-riding coordinative or regulatory mechanisms evolve. These range from minimal, tacit coordinations, to coordination through the proliferation of new organizations. "Thus, there is a wide range of coordinative and control devices developed as organizations evolve in their relations with each other, from weak, tacit linkages to enforced, explicit bonds" (op. cit.:38).

Marrett provided the second benchmark in the study of inter-organizational relationships. In her 1971 assessment of the state of knowledge about interorganizational relationships, she loosely defined

IR's as a variety of connections between groups. She identified five principal approaches to studying them.

In the Interorganizational Properties approach, the characteristics of a given organization which affect its interaction with the other are analyzed. The Comparative Properties approach requires that interacting organizations be compared on certain attributes. This may be useful for organizations of the same type, such as the situation when all organizations studied are human service organizations but it may be inappropriate for human service, non-human service combinations. The Formal Contextual and Non-organized Contextual Properties are useful situational descriptors but they do not probe the nature of the linkages. This is most effectively accomplished by the Relational Properties approach in which the formality, intensity, reciprocity, and standardization of the linkages are explored.

Formalization is in reference to the extent to which the characteristics and requirements of the relationship were made explicit. Suggested indicators of formalization are the degree to which the interdependency between organizations is given official sanction and the coordinating mechanisms which are employed. Intensity refers to the involvement required and could be measured by the frequency of interaction among personnel and by the relative resource commitment made by each participating organization. Reciprocity reveals the power symmetry of the relationship. Indicators of reciprocity include the degree to which resources are mutually exchanged between participating organizations and the extent to which the terms of the relationship are mutually agreed upon (Andrews et al, 1981). Standardization of the linkages

includes both unit standardization and procedural standardization (Marrett, 1971).

Van de Ven (1976:299) provided the third benchmark in the study of interorganizational relations. He defined an interorganizational relationship as a social action system on the premise that it exhibits the basic elements of any organized form of collective behavior:

1. Behavior among members is aimed at attaining collective and self-interest goals.

2. Interdependent processes emerge through division of tasks and functions among members.

3. An interorganizational relationship can act as a unit and has a unique identity separate from its members.

In recognizing IR's (interorganizational relationships) as social action systems they are identified by their functional goals, role structure, and behavior; not by their membership. The concept of "the whole being greater than the sum of its parts" is inherent in Van de Ven's recognition that:

> . . . many behavioral acts and events of the IR cannot be explained simply in terms of analyzing the behavior of individual organizations that are members of the IR. Rather, these observable social facts are collective events that arise out of the actions of the social system and are formally a property of the IR itself.
>
> (op. cit.:300)

In a social action system, a structure and a process are required to organize the activities of its members. Structure refers to the administrative arrangements that are established to define the role relationships among members. Process is conceptualized by Van de Ven as a flow of activities and refers to the direction and frequency of information and resources that actually flow between members (op. cit.:301).

Process and structure, then, comprise the framework within which the IR network can be analyzed. Any network, regardless of size, can be broken down into dyads in which the process and structural characteristics can be assessed.

As noted by Guetzkow, coordination is central to discussions of interorganizational linkages. Whetten (1981) provided the fourth benchmark in a comprehensive review of the literature on interorganizational linkages in which he noted that most linkage studies focused on improving coordination between participating organizations. He identified preconditions for successful coordination, mandated or voluntary.

Table 2

PRECONDITIONS FOR SUCCESSFUL COORDINATION

This table in which Guetzkow indicates that organizations which have largely identical activities, are seldom cooperative, seldom have a mixture of cooperative and competitive relations but are often competitive, may be found on page 38 in Studies on Behavior in Organizations, Raymond V. Bowers ed.

Whetten cautioned, however, against the preoccupation of researchers focusing only on improving coordination:

> One reason for this dominant procoordination bias in the literature is that researchers have typically approached their work from the perspective of the elites in the system under investigation. As a result there are few studies in wide circulation that have examined coordination from the point of view of clients, taxpayers, or organizational staff members. Research conducted from the vantage point of these interest groups would focus on a different set of issues, such as the loss of worker autonomy and efficiency due to the added paper work and staff meeting requirements imposed by large scale coordination programs and the loss of multiple access points into a service delivery system resulting from the elimination of useful program overlap.
>
> (1981:24)

Two concepts which are related to interorganizational linkages and which facilitate the study and understanding of IR's, are boundary spanning and loose-coupling.

Boundary Spanning

The concept of boundary spanning is, as noted by Guetzkow, related to interorganizational linking. Key individuals are able to communicate effectively across boundaries and are, therefore, an important linking mechanism (March and Simon, 1958, cited in Freshman and Scanlan, 1981). These people are called boundary spanners. Identification of boundary spanners for each unit in an IR may facilitate and expedite information gathering in the assessment of IR's.

Loose-Coupling

The concept of loose-coupling in organizations may be relevant in interpreting findings resulting from the assessment of IR's. This concept is seen as a "sensitizing" device by Karl Weick (1976). It sensitizes the observer to notice and question things that had previously

been taken for granted. Loosely-coupled events are responsive but each event also preserves its own identity and some evidence of its physical and logical separateness. It also carries connotations of impermanence, dissolvability, and tacitness "all of which are potentially crucial properties of the 'glue' that holds organizations together" (op. cit.: 1976). Weick suggests that, like building blocks, events can be grafted onto an organization or severed with relatively little disturbance to either the blocks or the organization.

Research in Interorganizational Linkages

The lack of clearly defined boundaries in organizations and the fluidity of interorganization interactions has made the identification and analysis of interorganizational linkages particularly difficult. Three recent Canadian studies have, however, explored the nature and effectiveness of linkages between human service organizations. Young (1979) explored the relationships between selected linkage, process, and implementation variables and the effectiveness of temporary adaptive systems. Andrews (1978) explored the relationships that existed between interorganizational linkages, degree of integration, and effectivness of four joint cooperative programs for the preparation of allied health professionals. Similarly, Mutema (1981) described interorganizational linkages between medical training center and occupational therapy and physical therapy departments of eight provincial hospitals in Kenya. He determined the effectiveness of clinical practice in these two fields in the provincial hospitals, the ideal importance of broad goal statements of clinical practice, and he examined the relationship between the forms of linkages and the effectiveness of clinical practice.

Young (1979:356) found that scores for linkage variables of formalization, intensity, reciprocity, positive consensus, and functionality over time related positively to temporary subsystem effectiveness for five of the seven committees in his study.

Andrews focused his study on the forms of linkage that join a college department to a hospital department "because they represented a class of organizational variables over which most organizations can exert some direct control" (1978:52). This was in preference to attempting to delineate forms of linkages that likely exist throughout the whole organization where interorganizational relations occur. He identified three primary linkage dimensions based on Marrett's conceptualization of relational properties. They were formalization, intensity, and reciprocity. He included Marrett's fourth property--standardization--in the formalization dimension.

The findings of his study led Andrews to formulate five tentative generalizations regarding linkage patterns in cooperative programs:

> If a joint cooperative program is characterized by a high relative resource commitment and if the resource commitment is symmetrical, then the cooperative program is likely to be characterized by high formalization and definitional reciprocity.
>
> If one organization engaged in a cooperative program has a high relative resource commitment, then the cooperative program is likely to be characterized by high formalization and structural standardization (coordination).
>
> If a joint cooperative program demonstrates an asymmetrical relative resource commitment, then the cooperative program is also likely to demonstrate low definitional reciprocity.

> If a joint cooperative program is characterized by symmetrical relative resource commitments and the resource exchange is low, then the cooperative program is likely to be characterized by low formalization and low structural standardization.
>
> If a cooperative program is characterized by high formalization, high standardization, and high relative resource commitment in its linkage dimensions, then the cooperative program is likely to result in higher student achievement than a program characterized by low formalization, low standardization, and low relative resource commitment.
>
> (Andrews, 1978:235)

Mutema also used Marrett's relational properties approach since one of the purposes of his study was to examine the nature of the linkages. Mutema used all four relational properties: formality, standardization, intensity, and reciprocity. His findings supported Marrett's (1971:95) contention that "the characteristics of her second model, in which the measures on all four characteristics would be high, are unlikely to exist due to the kinds of investments and commitments that organizations would have to make" (Mutema, 1981:218). That is, the findings revealed low degrees of formalization and procedural standardization, a relatively low degree of resource commitment in seven out of the eight hospitals, and the findings on the reciprocity dimension varied. The only linkage dimension that appeared to be high was that of intensity of relationships. This was in keeping with Marrett's observation that the intensity of relationships varies greatly among autonomous organizations.

A 1977 study by R. H. Hall, focusing on dyadic relationships among organizations that deal with the problems of youth, had as its primary focus the degree of coordination among organizations.

Although Hall says that the dominant theoretical perspective on interorganizational relationships is exchange theory, in this study

it was found that the exchange theory perspective is supported when the basis for interaction is voluntary. However, when the basis is a formal agreement or mandate, exchange theory is not useful because ". . . many of the issues involved in exchange situations are apparently resolved, since issues of competence of personnel, performance, and compatibility of operating philosophy may no longer appear to be relevant, although power is still operative in these situations" (1977:470). Hall recommends that once mandates have been issued or agreements reached, it is probably most appropriate to focus upon approaches other than exchanges.

This seems to be in keeping with the Whetten assertion and gives some direction for focus in mandated relationships.

Analysis of Interorganizational Relationships

Van de Ven, in setting the stage for analyzing external unit relationships built on the work of Starbuck (1976), Lawrence and Lorsch (1967), and Thompson (1967), and emphasized the importance of recognizing the total environment, internal and external, of any unit. In order to compare the characteristics of different relevant environments to one another and to examine these in relation to characteristics of their respective units, he proposed the following guidelines:

1. Focus on the unit or department (rather than the organizational) level of analysis.
2. Identify relevant environments both inside and outside the organization.
3. Measure the same dimensions in each of the relevant environments.

(Van de Ven, 1980:242)

How does one set about analyzing interorganizational relations? Young (1979:23) contends that the approach used is a function of the

purpose of the investigator. However, Van de Ven's framework of analysis is based on the premise that since an interorganizational relationship exhibits the basic elements common to any organized form of collective behavior, the analytic dimensions commonly used to measure social structure and process should also apply to an interorganizational relationship. These dimensions of structure, process, and ends are defined or quantified in terms of the formalization, centralization, intensity, and complexity of the structure; the direction and intensity of information and resource flows; and in terms of the perceived effectiveness of the interagency relationship (Van de Ven, 1976:304). Van de Ven includes five situational factors and hypothesizes that variations in the structure and process of a network can be largely explained by these factors, namely, resource dependence, commitment to problem issue or opportunity, awareness, consensus, and domain similarity (Table 4). These are included in his framework for assessing IR's illustrated in Tables 3 and 4.

The influence of Marrett is seen in Van de Ven's structure and process dimensions. However, the dimensions are further refined and are accompanied by more detailed indicators.

The measurement of process and structural dimensions involves soliciting sensitive information, sensitive in that it may not be politically prudent for an outsider to ask questions about the internal workings of an organization. There may be less of a problem if the study is confined to one organization, however, generalizing about linkages over a number of different organizations may put them in a position of being compared to each other--a position not generally appreciated by autonomous bodies. Who can, or may be the most acceptable researcher/

Table 3

A FRAMEWORK FOR ASSESSING IR'S*

Process Dimensions	
Categories	Indicators
1. Resource Flow --the units of value transacted between organizations	a. direction b. amount c. variability
2. Information Flow --message or communications --task-instrumental functions --maintenance functions	a. direction b. frequency c. quality (or conflict)
Structural Dimensions	
Categories	Indicators
1. Formalization --the extent to which rules, policies and procedures govern interagency agreement and contacts	a. extent to which rules and policies are established to transact activities between parties b. the number of procedures (agendas, minutes) that are followed by a committee or group that governs the network
2. Structural Complexity --the number of different elements that must be integrated for an IR to act as a unit	a. number of cliques, clusters, or subsystems (social differentiation) b. the number of different kinds of resources (instrumental differentiation)
3. Centralization --locus of authority in the network (decision-making centralization)	a. the degree of inclusive or concerted decision-making by the aggregate of organizations that are members of the IR
--centrality of the network	a. patterns of connections between agencies in terms of information and resource flows
4. Intensity --the strength of the network	a. at the unit level--the sum frequency of information and resource outflow. at the network level--the sum frequency of outflow divided by the number of agencies in the network

*Adapted from Van de Ven, 1981.

Table 4

A FRAMEWORK FOR ASSESSING IR'S*
SITUATIONAL FACTORS

Factor	Indicator
1. Resource Dependence	a. Agency's need for external resources. b. Agency's need for other agencies in network.
2. Response to Problem, Opportunity, or Mandate	a. Perceived willingness to respond to external problem, opportunity or mandate.
3. Awareness	a. Knowledge of system needs, problems, or opportunities. b. Knowledge of other agency's services and goals. c. Personal acquaintance of agency representative.
4. Consensus	a. Agreement among agencies on solution to needs or problems. b. Agreement on services and goals of agencies in network. c. Conflict on means and ends in network.
5. Domain Similarity	a. Sameness of agency goals, services, staff skills, and clients with other agencies in the network.
6. Size	a. Number of agencies in network.

* Adapted from Van de Ven, 1981:308.

evaluators? Perhaps those who have a mandate from an accrediting body to conduct a multi-system study, those who have been contracted to do an evaluation of an organization, and/or finally, a researcher of high credibility.

Cooperative Education

Definition

The definition or description of what Cooperative Education is varies with the educational institution and the nature of the situation. However variously it is defined, either by the goals of the program or by formal definition, every Cooperative Education program involves a practical work experience in conjunction with a formalized classroom learning requirement. As well, every Cooperative Education program involves three principal stakeholder groups: the student, the formal learning institution, and the employer (business or industry). The key to the success of the program is directly related to the degree of cooperation among these three groups. The effectiveness of this cooperation is contingent upon the acceptance by the stakeholders of the goals of the program. These must supersede independent (organizational) goals (Hauze & Simon, 1981).

A study on Cooperative Education planning identified several different, although sometimes interrelated, Cooperative Education purposes, goals, and priorities. They are as follows:

--Providing opportunities for career exploration by students;

--Providing students with technical skills and experience through specific career-related cooperative assignments;

--Giving students an introduction to the work world and some practical "human relations" training;

--Giving students from low-income families an opportunity to attend college due to partially covering costs through cooperative job earnings;

--Providing a means for schools to offset tuition differentials and thereby compete for students with less expensive schools; and

--Providing additional opportunities for minority and women students through using cooperative assignments to break down traditional barriers.

(Consad, 1975)

"Cooperative Education" generally describes a program at the post-secondary level. Terms such as work experience and career education are used more frequently in secondary education programs.

Cooperative programs and work study programs generally have these characteristics:

--Students divide their accredited school time between classroom and work place--alternating school terms or dividing days.

--The nature of the work that students perform is meant to complement their learning experiences.

--Schools and employers collaborate on procedures for selecting participants, evaluating and reporting student performance, and achieving some blending of program content.

(The Conference Board, 1980, p. 17)

Rationale for Cooperative Education

Initially the rationale for Cooperative Education was based on the need for students to have practical experience which could not be provided in the laboratory and on a recognition that the students needed money.

It soon became evident that student growth and maturity resulting from the cooperative experience extended far beyond the initial concept of Cooperative Education as being an extension of the college

laboratory. Business and industry benefited in a number of ways including employee screening and pre-selection. The necessary interaction between faculty and industry countered the "Ivory Tower" image of colleges and facilitated the development of more practical and meaningful curricula.

Ralph W. Tyler, writing about the values and objectives of Cooperative Education in reference to the advantage of this program, stated that:

> In a complex urban society, where adolescence is prolonged and maturation is slower than in earlier times, work experience affords opportunity for maturing that is not usually available in a social environment apart from the adult world. Cooperative students, on the job and in the socializing during work periods, associate mainly with adults. In these contacts, they can observe adults making decisions in various contexts; furthermore and of particular significance, they themselves have many opportunities to make decisions and to see their consequences. Greater self-confidence and independence result. Thus, work experience enables many students to develop into responsible adults.
>
> (Knowles, 1972:21)

Programming

One of the strengths of Cooperative Education is its flexibility. The administrative details can be designed to blend with the philosophy of the particular educational institution and the needs of the students to be served (Undergraduate Programs of Cooperative Education in the U.S. and Canada . . . Fifth Edition, 1977).

Programs are structured to meet the goals and objectives stated for the program. Generally, the timetabling in a university program is on an alternating basis; students spend a number of weeks or months on the work site followed by a number of weeks or months in class. Community and junior colleges may have similar arrangements or may divide

the students' day into part work experience, part study. An understanding of the benefits of Cooperative Education program membership to each stakeholder group is useful in assessing the interorganizational linkages in the program.

Benefits for Students

The benefits for the student of a Cooperative Education program were listed by Diaforli (1980:76) as follows:

--To understand classroom theory better by seeing it put to practice.

--To clarify and define career goals.

--To evaluate whether or not the student/intern has chosen the appropriate major.

--To obtain professional experience in a specific field of study.

--To develop self-confidence, maturity, communication skills, decision-making and responsibility.

--To earn a salary while the student/intern is still an undergraduate.

--To enhance the students prospects for employment upon graduation.

--To afford the student college credit towards a degree.

Some outcomes for students who participate in Cooperative Education are reflective of a well-coordinated program.

--For the students who have a clear idea of their ultimate career goal, the off-campus assignments provide sequences of work with increasing responsibility in their chosen field.

--For students who do not have a clear objectives and who are seeking to orient themselves to the world of work, a series of assignments can be arranged to provide a breadth of experience.

Benefits for Employers

The benefits of Cooperative Education for the employer were listed by Diaforli (1980:73) as follows:

--Recruitment costs are lowered by the colleges providing an excellent supply to highly motivated interns for entry level positions.

--The employer has an opportunity to observe the student in action before investing a large sum of money in training.

--The employer can utilize the program to fill temporary on-call assignments which do not require the valuable time of highly paid personnel.

--The employer becomes a contributor to the educational process, which will provide better qualified personnel for the future.

--The employer's professional staff is motivated toward continuous learning in order to identify with student questions, ideas and viewpoints.

--Students serve as "goodwill" ambassadors" for employers upon returning to the college campus.

--Employers develop a "family relationship" with the colleges through communication and mutual understanding.

The Conference Board Inc. in its 1980 study of Cooperative Education and Work Study programs enlarged upon the advantages in using these programs as sources of future staff:

1. Many employers see a better opportunity in Cooperative Education programs than they would otherwise have to attract able college graduates.

2. Some businesses find that Cooperative Education programs serve current staffing needs particularly well; two students sharing a job on a half-day or alternating period basis may be some circumstances be as, or more, efficient than one full-time employee.

3. The use of cooperative students may be a way of increasing the productivity of professional or managerial staff by relieving them of certain routine or minor tasks.

(Conference Board, 1980:20-21)

Benefits for the Education Institution

The benefits of a Cooperative Education program to the college are stated as follows:

> --The Cooperative Education internship program offers students an off-campus practical experience which the college is unable to provide.
>
> --Employers can aid the college in offering interns the most up-to-date facilities available.
>
> --Program participation facilitates permanent placement of the student upon graduation.
>
> --Faculty members can maintain a closer relationship with business and industry in keeping abreast of their expectations.
>
> --Students return to the academic community and share realistic on-the-job work experiences with fellow students and faculty members.
>
> (Diaforli, 1980:76)

The ultimate goal of the academic community should be to help students get the most from the academic experience. Upon graduation, students should be the best professionals produced by that institution.

What Constitutes an "Ideal" Cooperative Program?

A cooperative program is perceived to be most effective when development has been carefully planned. Frequent reference is made to this in the literature (Handbook of Cooperative Education, 1972).

Decision-Making. Once the program goals have been set and agreed upon, decisions in several key areas must be made and, for the program success, these should be consistent with the mutually agreed-upon goals and priorities.

The key decision areas as identified by Consad are:

> --Academic Majors to be Included in the Programs: Programs may be limited to students in technical fields such as accounting, engineering, business, and architecture, or liberal arts majors may be eligible.

--Relative Emphasis on Career Exploration Versus Gaining of Specific, Technical Job Experience:
Where programs include liberal arts majors, students may be primarily concerned with career exploration. Students in technical fields seem more likely to be concerned with developing technical job skills--and perhaps becoming full-time employees.

--Concern with Pay Scales for Cooperative Jobs:
Where these jobs make college possible for students from low-income families, level of pay--and minimizing of travel and subsistence costs for jobs not adjacent to campus--becomes very important. Where cooperative experience is the key objective, pay levels may be of less importance.

--Question of Academic Credit for Cooperative Education:
Cooperative programs may be particularly popular where academic credit towards graduation is awarded for cooperative experience. The question of transferability of credit is also a concern. Faculty may be wary of student performance and determining the academic relevance of the cooperative job. The nature and extent of classroom-job interface becomes an issue.

--Issues of Student Selection Criteria:
Cooperative programs can become "dumping grounds" for poorly qualified students or allow for "creaming" of the best qualified students. Selection criteria affect potential program impact in terms of career exploration, a source of income, and technical preparation for employment.

--Determination of Program Scheduling:
Cooperative Education programs may be mandatory or elective. Programming may be "alternate"-alternating periods of full-time study and full-time work assignments--or programs may be "parallel", providing for simultaneous part-time study and part-time work assignments.

--Administrative Issues:
The location of a program within the institutional structure may affect its support from faculty, particularly with regard to academic credit for work experience. Where cooperative programs are part of academic affairs offices, faculty support seems greatest.

--Question of Charging Tuition for Work Assignment:
If tuition is not charged for this period, schools may find it difficult to provide desirable faculty and staff oversight of the program. Yet, such costs may burden low-income students and seem justified only if work assignments are related to student's academic work.

Effective Strategies for a Successful Cooperative Program.

Employers: Hauze & Simon believe that the most appropriate corporate philosophy is one that views the cooperative program as professional development, and the cooperative student as a developing professional. This philosophy serves as the basis for the nature of work assignments established. The following criteria have been used by employers who have consistently met the objective of retaining the cooperative student as a developing professional.

1. Work assignments are scaled to the individual student's level of professional competence.
2. Assignments are technically challenging--they push students beyond their current state of knowledge and experience.
3. Assignments are of real importance to the employer--not "making work," although routine work may often be necessary.
4. Assignments relate to the students' career goals, but not necessarily to their specific academic discipline.
5. Experiences are incorporated from a broad spectrum of the employer's activities.
6. Assignments are planned well in advance of the student's arrival.

(Hauze & Simon, 1981)

Staffing. Program Coordinator: The literature repeatedly emphasizes the role of the program coordinator. This is of central importance to the success or failure of Cooperative Education programs since this staff person is responsible for the balancing of the needs of the students', education institutions, and the employers (Consad, 1975). The goals of the partners must be mutually compatible and complementary. Each must understand the objectives and responsibilities of the other

(Hauze & Simon, 1981). This "public relations" aspect of the coordination is primarily the responsibility of the coordinator.

Coordinator Characteristics

1. Coordinators must enjoy working with students and must want to become reliable and trusted associates.

2. Coordinators must understand the objectives of the cooperative employers. Although most employers espouse similar overall objectives, each may interpret them differently.

3. The coordinator should enhance the quality of each student's experience. The coordinator is the student's link between the university and the employer.

(Hauze & Simon, 1981)

Faculty. Barbeau (1980) cites several questions to be put to faculty members when a Co-op program is being evaluated. These suggest behaviors necessary for a successful program.

1. Do the majority of the faculty understand the concept of Cooperative Education and do they feel it is compatible with the institutions mission?

2. Do they endorse the program visibly to the students, employees and community?

3. Is there input sought in policy decisions affecting the Co-op program?

4. Are they familiar with the objectives of the Co-op program, do they view these objectives as worthwhile education activities?

5. Why did the institution adopt the Co-op plan?

6. What can it do for the institition?

Limitations to the Development of Cooperative Programs

The Conference Board Education Study, using as a data source the Cooperative Education Research Centre at Northeastern University, reported that in the United States Cooperative Education programs have

been adopted by only about 1 000 of the Nations' 3 000 junior and senior colleges, and that approximately 200 000 college students--only three percent of all those enrolled full-time in junior and senior colleges--participate in cooperative programs in the United States (p. 22). This is reflective of a number of limiting factors:

1. Colleges may not be sufficiently persuaded to the value of Cooperative Education, and therefore are unwilling or unable to assume the administrative costs.

2. Employers are usually unwilling to limit their recruitment to academic institutions having Co-op programs.

3. A necessary condition of employer demand is that work exists.

4. The cost of assigning knowledgable individuals to developing training programs, to guiding and supervising Co-op students, to coordinating with the educational institution and to evaluating student performance, is high.

5. Where Co-op students are paid out of the budgets of departments that employ them, or to which they are assigned, the indifference or resistance of line management is a particularly strong obstacle.

6. Young people have legitimate competitors for available job openings. Human rights legislation may force consideration of hiring minority groups such as females and the handicapped.

7. Organized labor (unions) may or may not endorse the program.

8. The numbers of job openings that will be available at given dates, and with starting times flexible enough to be accommodated with school schedules, may be difficult to estimate with confidence.

9. Some employers who are pleased with the results of existing programs are reluctant to expand their use as a source of entry level personnel out of concern that further growth will come at the expense of quality.

10. Many employers are not in the cooperative programs because they have not been asked.

Cooperative Education Programs in Canada

Although there are many variations of Cooperative Education in the form of work experience, work study, internships, and apprenticeships in secondary schools and the community colleges in Canada, this discussion will be limited to those identified as Cooperative Education programs in Canadian post-secondary institutions.

The number of universities in Canada which have cooperative programs is increasing each year. A spokesman for The Canadian Association for Cooperative Education (CAFCE), reports that is is not easy to keep track of programs in a country the size of Canada. However, the CAFCE 1982 membership application form listed the following colleges and universities offering Co-op programs:

British Columbia

- Simon Fraser University
- University of British Columbia
- University of Victoria
- Vancouver College

Alberta

- University of Alberta
- University of Lethbridge

Saskatchewan

- University of Regina

Manitoba

- Red River College

Nova Scotia

- Acadia University
- College of Cape Breton
- Dalhousie University
- Mount St. Vincent University
- Technical University of Nova Scotia

Newfoundland

- Memorial University of Newfoundland

Ontario

- Algonquin College
- Brock University
- Confederation College
- Fanshawe College
- Georgian College
- Lambton College
- McMaster University
- Mowhawk College
- Niagara College
- St. Clair College
- Seneca College
- University of Ottawa
- University of Toronto (Scarborough College)
- University of Waterloo
- Wilfrid Laurier University

Quebec

- Concordia University
- Dawson College
- Institut Maritime du Quebec
- Universite de Quebec
- Universite de Sherbrooke

In 1979 the CAFCE set up the Cooperative Education Council of Canada to regulate the quality of all cooperative programs in Canada. The council monitors programs and accredits those that meet its requirements. The purpose of accreditation arose out of a definite concern that quality be maintained.

CAFCE defines Cooperative Education as follows: Cooperative Education is defined as a process of education that formally integrates the student's academic study with work experience in cooperating employer organizations. The usual plan is for the student to alternate periods of experience in appropriate fields of business, industry, government, social services, and the professions. Co-op programs will be in accordance with the following criteria:

1. Each work situation is developed and approved by the institution as a suitable learning situation.
2. The student is engaged in productive work rather than merely observing.
3. The student receives remuneration for work performend.
4. The student's progress on the job is monitored by the institution.
5. The student's performance is supervised and evaluated by both the employer and the institution.
6. The total cooperative work experience is normally 50 percent of the time spent on academic study, and under no circumstances will this figure be less than 30 percent.

The Engineering Cooperative Education program in the university under study is a new program. A proposal for the program was developed in 1979 and was approved by the Board of Governors of the university in

April, 1980. The provincial Department of Advanced Education and Manpower officially announced financial support of the program in April, 1981.

The program structure consists of a Co-op placement office consisting of the director, associate director, and coordinators (placement officers). The office is accountable to the Dean of Engineering.

The function of this office is to serve as the focal unit in the coordination of students, employers, and faculty in Co-op related matters.

Program Effectiveness

This study of interorganizational linkages in a Cooperative Education program includes a section on program effectiveness. The issue of determining program and/or organizational effectiveness involves problems of definitions of terms, scope of study, identification and specification of contextual factors, and of objectives.

Program effectiveness has been defined as a desired end-state. "Most writers allude to the concept as some sort of end-state that managers strive to achieve" (Steers, 1977:xi).

The development of understanding of organization effectiveness seems to have had its beginnings in organizational development theory. However, there is a parallel in program effectiveness literature.

It could be argued that program effectiveness is a subset of organizational effectiveness since an organization could carry out more than one program. The program effectiveness concept tends to be used more often in public sector-human service organizations whereas organizational effectiveness tends to be the focus in private sector organizations.

Regardless of whether the topic is program or organizational effectiveness, assertions about effectiveness must be qualified in terms of the criteria used and the variables considered. "Given that many of the proposed measures of effectiveness are uncorrelated or even negatively correlated, we should not expect to find general explanations that will distinguish effective from ineffective organizations" (Scott, 1981:334). Perceptions of effectiveness will vary with the recipient. It depends upon who wants to know. Perceptions of organizational and program effectiveness seem to be unique to the individuals who have vested interests in them and to the recipients of the programs.

Several attempts have been made to identify criteria for effectiveness. "Price (1968), Steers (1975), and Campbell (1977) as well as others have assembled lengthy lists of criteria that have been used by one or more analysts in measuring effectiveness. Campbell, for example, lists 30 different criteria, ranging from productivity and profits to growth, turnover, stability, and cohesion" (Scott, 1981:318). Selection of criteria is a political process involving the constituencies having an interest in them.

Effectiveness and Evaluation

Program and organizational effectiveness discussions seem to be closely related to those of program and organizational measurement or evaluation. Indeed, to evaluate requires identification of some criteria on which to base the judgment as does a statement about effectiveness. The claim that a program or organization is effective or not, must be based on some criteria. In other words, "Effectiveness in terms of what?" Models have proven useful in delineating criteria, standards, and parameters.

Interorganizational Relationships as Part of a Model

Models are useful as representations to some extent. However, they are not without limitations. Kaplan (1964:263) in his discussion of the structure of models explains that:

> Broadly speaking, we may say that any system A is a model of system B if the study of A is useful for understanding B without regard to any direct or indirect causal connection between A and B. When one system is a model of another, they resemble one another in form and not in content.

Kaplan cautions against the over-emphasis on rigor in the use of models. He refers to this as map-reading--the failure to realize that the model is a particular mode of representation so that not all its features correspond to some characteristic of its subject matter.

Although a number of models have been developed to encompass effectiveness variables, in actual practice, assessors seem to use components from several models; seldom is a specific model used in its totality. The goal of declaring a program effective or not effective is only partially realized since statements of effectiveness are qualified in terms of the parameters within which the assessment was made and in terms of the criteria used.

Criteria for organizational effectiveness can be chosen for different organizational levels. Hoy and Miskel (1982) allude to the role of interorganizational relationships in their recognition of multiple constituencies. These play critical roles that define the goals and also provide information for their assessment. There are strong implications here for the Cooperative Education program. The adherence to a systems approach is noted in their insistence upon multiple criteria. Effectiveness indicators must be derived for each phase of the open system cycle-

input, transformation, and output. The variables identified thus far in attempting to develop a model for assessing the effectiveness of a Cooperative Education program seem to be those appropriate to a systems model.

Input (Structure)	Transformation	Output
Multiple Constituencies Focal Unit Autonomous Unit Non-Autonomous Unit	Relationships	Criteria in terms of stage in life cycle of organization, long, interim, and short term goals, and in terms of each constituency.

The limitations of a systems model are recognized in that by so specifying the environment, other influences may be overlooked. For this reason, and recognizing that focusing on relationships is only a part of the total organizational scenario, it is premature to complete an organizational effectiveness model for a Cooperative Education program.

Ten objectives for participation in a Cooperative Education program have been identified as follows:

--To provide a potential source of trained manpower to industry.

--To provide students with technical skills and experience through specific career-related Co-op assignments.

--To enhance opportunities for mutual understanding and cooperation between industry and the faculty.

--To provide opportunities for companies to assess students and vice versa.

--To provide opportunities for career exploration by students.

--To enhance university courses via input from industry.

--To equip students with the skills necessary for securing employment.

--To give students an introduction to the work world and some practical "human relations" training.

--To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.

--To provide additional opportunities for minority and women students through using Co-op assignments to break down traditional barriers.

(Developed through a review of the literature and with input from University of Alberta cooperative administrators.)

While all stakeholders may acknowledge all objectives, their priorities will vary with their purposes of participation. For example, employers place higher priority on #4--to provide opportunities for companies to assess students and vice versa, than do those in the teaching faculty who place higher priority on #6--to enhance university courses via input from industry. Students may place #2--to provide students with technical skills, above #1--a potential source of trained manpower to industry.

It is possible, then, to identify some components of the model. However, any statement of effectiveness must be qualified in terms of specified criteria.

Summary

This literature review has been provided to establish an understanding of, and a theoretical framework for this study. The theory available concerning IR's was presented by focusing on four writers who have made significant contributions to the area. Although understanding of the topic has been described as primitive at this time, it is possible to say what IR's are and what they are not and it is possible to measure them in a fairly specific way, as indicated by Van de Ven.

The discussion of Cooperative Education was designed to present the reader with basic information on what it is and what its strengths and weaknesses are. This will also facilitate understanding of the variables affecting effectiveness. It concludes with a listing of Cooperative Education programs in Canada. The Cooperative Education program in the faculty of engineering at the university under study was described in greater detail since it is the vehicle for the focus on linkages in this study.

The final section gave brief attention to the topic of program effectiveness. The purpose of the study of IR's must be placed in context. An assessment of IR's in a given network of organizations contributes greatly to the evaluation or assessment of effectiveness of the network.

Chapter III focuses on the research design used in this study.

CHAPTER III

RESEARCH DESIGN

The purpose of this chapter is to describe the research design used for this study of interorganizational linkages. The problem and sub-problems are stated and a brief description of the focus of the study, the Cooperative Education program, is given. The groups of research variables are identified. The section on instrument selection and development deals with the process used to select and validate the instruments used. Finally, the data collection and treatment processes used are outlined.

Statement of Problem

Due to the paucity of information and research of interorganizational linkages at this time, the generation of testable hypotheses was deemed inappropriate. Hence, the problem was phrased as a question which subsumed several sub-problems.

Research Problem

What are the interorganizational linkages in a Cooperative Education program?

Sub-Problems

1. What organizations and interest groups are involved in a university Cooperative Education program?
2. What is the extent of the relationships (linkages) between the focal unit and four other units, based on the dimensions of intensity, formalization, complexity, centralization, and information and resource flows?

3. What are the correlations between the situational factors and the structural dimensions?
4. How do the relationships correlate with the program objectives held by the stakeholders?

The Focus of the Study

The focus of this study was upon the linkages in a Cooperative Education program in the faculty of engineering in a Canadian university. The linkages (interorganizational relationships) between the stakeholder groups are the essence of the Cooperative Education program. The main stakeholder groups are the employers, the students, the teaching institution, and the program administrators. Therefore the program involves public sector (university) and private sector (employers in industry) organizations.

This study was conducted during the first year of operation of the Cooperative Education (Co-op) program.

Research Variables

Four groups of research variables were selected: linkages, situational variables, effectiveness variables, and program objectives as perceived by stakeholder groups.

Linkages

The linkage variables were based on Van de Ven's (1980) structural dimensions. These are (1) intensity, (2) formalization, (3) complexity, and (4) centralization.

Situational Variables

The situational variables were selected from those identified by Van de Ven. They are (1) resource dependence, (2) awareness, and (3) consensus.

Effectiveness Variables

Effectiveness variables included those identified by Van de Ven, who arrived at an index of effectiveness through administration of six questions. These questions were used for employers, chairmen, administrators, and teaching faculty. An index for students was developed separately.

Program Objectives

A list of ten program objectives for Cooperative Education was developed from the literature and verified by the Dean of the faculty and by the program administrators. Three primary objectives were selected from the list of ten by respondents.

The Research Population

The total population of each of the five stakeholder groups was surveyed. The groups were (1) program administrators, (2) students, (3) department chairmen, (4) faculty, and (5) employers. The total number surveyed was 202.

Instrument Selection and Development

Five instruments were required for this study, one for each of the selected stakeholder groups.

The Questionnaires

The questionnaires were adapted from the Van de Ven focal unit and other unit instruments. Adaptation was for appropriateness to each

group in terms of the topic (the Co-op program), and in terms of the nature of the group. The student questionnaire required the greatest modification. Modifications and adaptations were on the basis of:

1. A review of the literature on Cooperative Education, interorganizational linkages, and program effectiveness.
2. A review of research instruments used in interorganizational studies.
3. Interviews with 17 Co-op program students, three program administrators, one engineering department chairman, and the Dean of the Faculty of Engineering.

Since the students are, to some degree, the clients in the program and are not involved in the same way as are the other stakeholder groups, many of the Van de Ven items were inappropriate. Consequently, a separate instrument was developed on the basis of the above interviews. A semi-structured interview guide was used for these interviews. Following the interviews, an initial instrument was administered to the first group of students after they had returned from their initial on-site work experience in September. The instrument was revised and then administered to the second group after they returned in January. The final instrument was developed with information gained from the two preliminary instruments and was administered to all students currently registered in the program.

Similarly, a preliminary questionnaire was administered to the employers. This consisted of eight open-ended items, the purpose of which was to discover employers' perceptions of the program at that early stage and to have them identify the most appropriate contact person

(boundary spanner) to approach with further questions.

Reliability and Validity of the Instrument

In addition to the above mentioned activities, content and face validity were determined.

1. The first step was the use of the Van de Ven instruments. Although Van de Ven (1980:346) cautions that findings based on his instruments should be "interpreted with caution and as an exploratory attempt to develop indices that measure selected dimensions of interorganizational coordination," they are the most detailed instruments available. He used them in a study involving 133 pair-wise relationships and followed this with modifications that were made to improve and generalize the measures. It was the modified Organizational Assessment Instruments which were used in this study.
2. In order to establish further validity, the instruments were submitted to a panel of judges consisting of an administrator in education and an administrator in government. Both members were familiar with the concept of interorganizational linkages.
3. An ex-post test of validity was provided in the final section of each of the instruments by a section labelled "Comments."

Since this study was a part of an on-going evaluation, and since a pilot study would bias the final study, given that the same respondents would have to be used, no pilot study was conducted. However,

in an effort to determine appropriateness, the program administrators' questionnaire was the first to be administered and the program administrators were told that the instruments for the other four groups were similar though somewhat less detailed. One administrator was shown the instruments and invited to comment on their appropriateness. They were deemed satisfactory.

Table 5 outlines the definitions and measures of interunit relationships and identifies the items used in each of the five instruments to measure each category. OAI refers to Van de Ven's Organizational Assessment Instrument. FQ represents the Focal Unit and OQ represents the Other Unit instruments. The numbers on the table indicate the questionnaire items. The questionnaires are located in the appendices to this study. The five instruments were for employers, students, department chairmen, program administrators, and the teaching faculty.

Although the Van de Ven instruments include categories of Interunit Resource Flows and Interunit Domain Similarity, these were not included in this particular study. Interunit Resource Flows involves questions regarding percentage of work, money, and technical/functional assistance exchanged between the Focal Unit and the Other Units. These questions seemed inappropriate to ask of the stakeholder groups in this Co-op program. One reason is that the program is in its infancy and preliminary research indicated that such detailed information was not available. Secondly, these may be questions more appropriately posed by someone who has authority to do so within the stakeholders group.

Interunit Domain Similarity deals with the extent to which stakeholder groups have the same funding source, kind of work, clients

Table 5

CHART RELATING SURVEY QUESTIONS TO DEFINITIONS AND MEASURES OF INTERUNIT RELATIONSHIPS

	OAI		Employers	Students	Department Chairmen	Administrators	Faculty
	FQ	OQ					
A. Basic Identification Variables							
1. Types of reasons for relationship							
a. for work	5a	5a	6a			2a	
b. for resources	5b	5b	6b			2b	
c. for teacher assistance	5c	5c				2c	
d. for information	5d	5d			7	2d	6
2. Prior effectiveness of relationship	8	4	5		6		5
B. Interunit Resource Dependence							
a. other unit dependence on focal unit	9	8	9		10	6	9
b. focal unit dependence on other unit	10	7	8		9	7	8
c. importance of other unit to focal unit	3						
d. importance of focal unit to other unit		19	19		20		19
C. Interunit Awareness							
a. years/months relationship in existence	7						
b. focal unit informed of other unit goals and services	11					8	
c. other unit informed of focal unit goals and services		3	4	8	5		4
d. years/months of personal acquaintance	15					1	
e. degree of personal acquaintance	16	1	2	2	3	2	3
D. Interunit Consensus/Conflict							
a. agree on goal priorities	17a	2a	3a		4a	3a	
b. agree on ways work/services are provided	17b	2b	3b		4b	3b	
c. agree on terms of relationship	17c	2c	3c		4c	3c	
d. extent other party hindered performance	19	17				4	
e. frequency of conflict	32	16	17		18	19	17
E. Methods of Conflict Resolution							
a. CR by avoiding issues	33a					20a	
b. CR by smoothing over issues	33b					20b	
c. CR by confronting issues	33c					20c	
d. CR by heirarchy	33d					20d	
F. Interunit Communications							
a. frequency of written reports	22a					12a	
b. frequency of face-to-face talks	22b					12b	
c. frequency of telephone calls	22c					12c	
d. frequency of group meetings	22d					12d	
e. overall frequency of contacts		13	14	4	15	10	14
f. percent time spent with other party	26a	12	13		14	9	13
g. percent contacts initiated by focal unit	23					13	
h. difficulty getting in touch	25	14	15		16	15	15
i. difficulty getting ideas across	24	15	15		17	14	16

CHART RELATING SURVEY QUESTIONS TO DEFINITIONS AND MEASURES OF INTERUNIT RELATIONSHIPS (CONTINUED)

	OAI		Employers	Students	Department Chairmen	Administrators	Faculty
	FQ	OQ					
G. Variability of Resource Flows							
a. resource flows the same each time transacted	28						
b. resource flow problems encountered	30					17	
c. resource flow interruptions	29					16	
H. Formalization of Interunit Relationships							
a. extent relation mandated	4a-4d						
b. relation explicitly verbalized	6a	11a	12a	5a	13a	3a	12a
c. relation written down in detail	6b	11b	12b	5b	13b	3b	12b
d. extent SOP's established	31a					18a	
e. extent formal channels followed	31b					18b	
I. Interunit Influence							
a. focal unit say over other units operations	13	9	10		11		10
b. extent focal unit changed other units' goals or services	40	26	26		27	27	26
c. other unit say over focal unit operations	12	10	11		12		11
d. extent other unit changed focal unit goals or services	41	25	25		26	28	25
J. Perceived Effectiveness of Interunit Relationship							
a. extent other unit carried out commitments	35	21	21		22	22	21
b. extent focal unit carried out commitments	36	20	20		21	23	20
c. extent relationship is productive	37	22	22		23	24	22
d. extent time and effort is worthwhile	38	23	23		24	25	23
e. extent satisfied with relationship	39	24	24		25	26	24
f. equality of transactions	40	6	7		8	5	7

* Van de Ven, 1980

or customers, operating goals, employee skills, and the same technology. The composition of the Co-op program is of stakeholder groups which are different and have resources to exchange which differ from each other group, hence, these questions have no relevance in the Co-op setting. They, as well as those in Interunit Resource Flows, would be more appropriately asked of a mandated relationship.

Data Collection

Instruments were mailed to all respondents April 1, 1982. Responses were received up to and including May 11, 1982. This period of time was to allow students and faculty involved in examinations and students out in industry to have time to respond.

Each questionnaire was accompanied by a self-addressed, stamped return envelope. Each questionnaire was also accompanied by a letter of introduction (copies of the questionnaires and letters of introduction may be found in the appendices of this study). Particular instructions comprised the introduction to each questionnaire. All items designed to measure linkages and effectiveness were in a five point likert scale response format. The three open-ended questions in the student questionnaire and the initial question in the administrator's instrument were intended for the evaluation of which this study is a component and are not included in the analysis.

Data Treatment

All data were recorded on data processing cards for analysis. The small number of respondents for some of the groups limited the number

of statistical procedures which could be used. However, the following statistical procedures were conducted:

1. Frequencies and Distribution of Responses were conducted on all instruments using the Statistical Package for the Social Sciences (SPSS) program.

In keeping with the Van de Ven (1980) statistical analysis of linkage variables, the mean for each linkage category or section of a category, was calculated to establish a reference point for reporting the relative strength of each linkage.

2. The SPSS sub-program Cross-tabs was used to cross-tabulate the personal and program variables for the five groups of respondents.

The three most important program objectives were cross-tabulated with the perceived program effectiveness for students, employers and faculty to determine whether respondents who recorded high perceived program effectiveness, shared similar program objectives.

3. Pearson Correlation Coefficients were calculated between situational and structural variables for chairmen, and employers. The student questionnaire was factor analyzed to two factors using the SPSS Varimax Rotated Factor Matrix. The purpose of this activity was to identify groupings of variables.

4. Pearson Correlation Coefficients were calculated to determine whether relationships existed between effectiveness and the linkage dimensions.

Summary

The research design for this descriptive study involved five instruments in the form of written questionnaires. Although the

statistical analysis of findings was somewhat limited due to the small number of respondents in three of the five groups, the numbers were sufficient to measure the interorganizational linkages using the Van de Ven techniques.

An added dimension to this study was the inclusion of perceived program objectives. Statistical procedures were used to discover whether correlations existed between perceived program objectives and perceived program effectiveness.

The findings of the research are presented in Chapters V, VI, and VII.

Chapter IV

QUESTIONNAIRE RATE OF RETURNS AND DEMOGRAPHIC VARIABLES

The questionnaire rate of returns and the demographic variables of the groups surveyed are the topics of this chapter.

Questionnaire Response Rates

A high percentage return of questionnaires is desirable in research. However, several factors may mitigate against a high rate of return.

The fact that this study was a part of an on-going evaluation, that the concept of a Co-op program may appeal more to some respondents than to others, and that the specificity of the instrument may have precluded use of other information gathering methods, may all have influenced the rate of return. Also, while the total research population was surveyed, whether or not they had information with which to respond was dependent upon their level of involvement with the program. Since this is an exploratory study to determine the extent to which linkages exist, it was deemed inappropriate for the researcher to determine who would be the "best" respondents. Hence, all students in the program, all members of the engineering teaching faculty, all employers who had or were participating in the program, and the administrators of the program, were surveyed. The distribution and rates of return of the questionnaires are recorded in Table 6.

Description of Respondents

The implementation schedule for engineering departments to enter the Cooperative Education program is presented in Table 7. The implementation of different departments at different times may be a factor in the rates of return of questionnaires.

Table 6

DISTRIBUTION AND RETURNS OF QUESTIONNAIRES BY STAKEHOLDER GROUPS

Respondents	Total Distributed	Number of Returns (Usable)	Number of Non-Returns	Percentage of Usable Returns
Students	92	45	47	48.91
Teaching Faculty	88	34	54	38.63
Department Chairmen	5	3	2	60.00
Employers	17	8	9	47.06
Program Administrators	3	3	-	100.00

Table 7

IMPLEMENTATION SCHEDULE FOR ENGINEERING DEPARTMENTS TO ENTER THE CO-OP PROGRAM

Department	Date
Mechanical	Spring, 1981
Electrical	Spring, 1982
Mineral	Spring, 1982
Chemical	Spring, 1983
Civil	Spring, 1983

Program Administrators

There are three program administrators for the Co-op program. They bear the titles of director, associate director, and coordinator. All three have been with the program since it began, however, previous to her Co-op involvement, the director had directed the Summer Work Experience Program for three years. This involved working with employers and students and resulted in the establishment of a rapport with these stakeholder groups which facilitated the inauguration of the Co-op program.

Department Chairmen

Three of the five department chairmen responded to the questionnaire. They were from the mechanical, electrical and civil engineering departments. One of the chairmen has been in that position for three years, the other two have been in their current positions for six to eight years (Table 9).

Table 8

FREQUENCY AND DISTRIBUTION OF DEPARTMENT CHAIRMEN RESPONDENTS BY ENGINEERING DEPARTMENT

Department	Frequency	Percentage
Mechanical	1	33.3
Electrical	1	33.3
Civil	1	33.3
Total	3	100.0

Table 9

FREQUENCY AND DISTRIBUTION OF DEPARTMENT CHAIRMEN RESPONDENTS BY LENGTH OF TIME IN CHAIRMAN POSITION

Years	Frequency	Percentage
3 Years	1	33.3
6-8 Years	2	66.7
Total	3	100.0

Faculty

Of the 34 faculty members who responded, six (17.6%) were from the mechanical engineering department, three (8.8%) were from chemical engineering, four (11.8%) were from mineral engineering, seven (20.6%) were from electrical engineering, and 14 (41.2%) were from civil engineering (Table 10). The entire engineering faculty were polled because whether their department was involved in the program or not, Cooperative Education students could be taking courses from them. Of the 34 faculty who responded, the majority (67.7%) had been a member of their department for nine or more years (Table 11).

Table 10

FREQUENCY AND DISTRIBUTION OF FACULTY RESPONDENTS BY ENGINEERING DEPARTMENT

Department	Frequency	Percentage
Mechanical	6	17.6
Chemical	3	8.8
Mineral	4	11.8
Electrical	7	20.6
Civil	14	41.2
Total	34	100.0

Table 11

FREQUENCY AND DISTRIBUTION OF FACULTY RESPONDENTS BY NUMBER OF YEARS IN THEIR DEPARTMENT

Number of Years	Frequency	Percentage
1	4	11.8
2	3	8.8
3	2	5.9
5	1	2.9
6-8	1	2.9
9-10	2	5.9
11-15	10	29.4
More than 15	11	32.4
Total	34	100.0

Employers

Eight employer representatives responded for their companies. Table 12 indicates the type of companies represented. Some companies have been involved with Cooperative Education programs from other learning institutions as indicated in Table 13. Their length of involvement with the program under study ranges from three to eighteen months (Table 14).

Table 12

FREQUENCY AND DISTRIBUTION OF EMPLOYER RESPONDENTS BY TYPE OF COMPANY

Type	Frequency	Percentage
Crude Petroleum	1	12.5
Manufacturing	3	37.5
General Contractor	1	12.5
Engineering Services	3	37.5
Total	8	100.0

Table 13

FREQUENCY AND DISTRIBUTION OF EMPLOYER RESPONDENTS BY LENGTH OF INVOLVEMENT IN COOPERATIVE EDUCATION PROGRAMS

Years	Frequency	Percentage
1 Year	3	37.5
2 Years	2	25.0
5 Years	1	12.5
6-10 Years	1	12.5
11-15 Years	1	12.5
Total	8	100.0

Table 14

FREQUENCY AND DISTRIBUTION OF EMPLOYERS BY LENGTH OF INVOLVEMENT WITH THE UNIVERSITY CO-OP PROGRAM UNDER STUDY

Months	Frequency	Percentage
3	1	12.5
12	5	62.5
18	2	25.0
Total	8	100.0

Students

The students have been in the program for varying lengths of time. Thirty-five joined the program in the initial recruitment period, spring of 1981. Of these, 17 began their four-month work experience in May. They returned to classes in September. The remaining group entered an eight-month work experience and returned to classes in January of 1982. All students in the initial group were in mechanical engineering. Sixty-two students joined the program in the spring of 1982. This group

includes 37 mechanical engineering students, 16 electrical engineering students, and nine mineral engineering students.

As indicated in Tables 15 to 19, the students range in age from 18 to 23 years. The majority of student respondents were in mechanical engineering. Responses received from early registrants (1981) were slightly greater (53%) than those received from recent registrants (40%). Two of the students were female. At the time of responding, 33 of the students were at university, 11 were on work-sites.

Table 15

FREQUENCY AND PERCENTAGE DISTRIBUTION
OF STUDENTS BASED ON AGE

Age	Frequency	Percentage
18 Years	1	2.2
19	14	31.1
20	12	26.7
21	11	24.4
22	6	13.3
23	1	2.2
Total	45	100.0

Table 16

FREQUENCY AND DISTRIBUTION OF
STUDENTS BY ENGINEERING AREA

Area	Frequency	Percentage
Mechanical	36	80.0
Electrical	6	13.3
Mineral	3	6.7
	45	100.0

Table 17

FREQUENCY AND DISTRIBUTION OF STUDENTS BY
YEAR IN WHICH THEY JOINED THE CO-OP PROGRAM

Year	Frequency	Percentage
1980	3	6.7
1981	24	53.3
1982	18	40.0
	45	100.0

Table 18

FREQUENCY AND DISTRIBUTION OF
STUDENTS BY SEX

Sex	Frequency	Percentage
Male	43	95.6
Female	2	4.4
	45	100.0

Table 19

FREQUENCY AND DISTRIBUTION OF
STUDENTS BY LOCATION

Location	Frequency	Percentage
University	33	73.3
Work	11	24.4
No Response	1	2.2
Total	45	100.0

Summary

Five stakeholder groups in the Cooperative Education program were surveyed. Although members of each group were involved to a greater or lesser extent, depending upon the timeline for implementation of their department in the program (Table 7), the rate of response from those involved was relatively high. This was particularly true for students and employers. The teaching faculty and department chairmen had the lowest rate of response. Demographic variables for each group were presented to describe each group as accurately as possible.

Chapters V, VI, and VII present the research findings of this study for each group.

Chapter V

SITUATIONAL VARIABLES

In this chapter and in Chapter VI the research findings for the linkage dimensions for each stakeholder group are presented; situational variables in Chapter V and the structural variables in Chapter VI. Calculations were conducted to determine the frequency and distribution of responses and the mean for each linkage category, then calculations were conducted to determine where and to what extent correlations exist between linkage dimensions. As well, correlation coefficients were calculated between effectiveness and the linkage dimensions. The findings for effectiveness are presented and discussed in greater depth in Chapter VII.

The mean of all the means for each situational factor and structural dimension was calculated for all groups for which that variable was measured. The purpose of this activity was to establish a standard against which to determine the strength of the linkages between each group and the focal unit.

Findings are reported for each of the categories of situational variables and structural dimensions in the following order: (1) Interunit Resource Dependence, (2) Interunit Awareness, (3) Interunit Consensus/Conflict, (4) Interunit Communications, (5) Formalization of Interunit Relationships, (6) Interunit Influence, and (7) Perceived Program Effectiveness. Within each category findings for each group are reported in the order of, (a) Program Administrators, (b) Department Chairmen, (c) Faculty, (d) Employers, and (e) Students.

A discussion of interorganizational linkages is best understood when the context in which the program exists is known. Van de Ven identified several situational factors which support the reason an IR exists (Chapter II, Table 5). Some of this situational information can be gleaned from interviews and from document analyses. Other information can be gained by use of Van de Ven's Organizational Assessment Instruments (OAI).

For this study, the situational factors of awareness, resource dependence, and consensus/conflict were measured by use of the Organizational Assessment Instrument. Information about the other situational factors (response to a problem, opportunity, or mandate; domain similarity; size) is discussed in a general fashion with information gained from the above-mentioned interviews and document analyses. The general discussion follows.

An interorganizational relationship may be because of a response to a problem, an opportunity, or a mandate. The stakeholder groups involved in the Cooperative Education program each represent these responses to some extent. The chairmen, employers and students perceived a problem for themselves regarding employment and training and viewed the Co-op program as an opportunity to alleviate the problem partially by membership in the program. The group for whom the program was mandated was the teaching faculty. Although they were informed about the program, they do not have the option to be involved or not. The nature of their involvement is in the teaching of students. All classes are, or have the potential to be comprised of Co-op and non-Co-op students.

"Domain similarity is a very broad construct of the degree of overlap in the domains of the organizations in a relationship"

(Van de Ven, 1980:323). It involves the extent to which organizations obtain their funding from the same source, provide the same kind of services, serve the same clients, and have the same kind of operating program goals.

Each group of stakeholders in the Cooperative Education program has different domains and hence, brings different resources to the program. Employers have work experience positions and need employees with engineering training. Students have some training but no experience. The teaching institution has knowledge and students but lacks facilities which totally duplicate the real working world of the engineer. Employers lack the time and expertise for theoretical instruction provided by the teaching institution. However, they do have facilities for the practical experience needed by the student. The learning institutions exist in an environment with which they benefit from interaction in providing training needed by society. The Co-op program facilitates this interaction.

The size of the network comprised of interorganizational linkages is also a situational factor. In this instance the network is the Cooperative Education program. It is a mediated network which involves three primary stakeholder groups. That is, there is a focal organization through which the stakeholder groups interact. Figure 1 (Chapter I) illustrates the number and variety of units involved in the operation of the Cooperative Education program. Although at the time of the study there appeared to be approximately 20 different employers involved, this number is expanding rapidly with the growth of the program. A similar growth is occurring in the number of students opting for the Co-op program.

Size is related to structural complexity, a situational variable identified by Van de Ven. "The definition of complexity at the interorganizational level appears to be (1) the number of different cliques, clusters, or sub-systems (they are used synonymously) in the IR network, and (2) the number of different kinds of resources that are transacted between agencies in the network" (Van de Ven, 1980:304).

It would seem that the variable of size will be of increased importance as the program grows. Perhaps it is sufficient at this time to note the variety and nature of units involved as indicated in Figure 1.

The types of organizations in the network must be considered. The employers and the faculty each represent the two types of organizations labelled, for purposes of this study as private sector and public sector, respectively. The distinction between public and private sectors can be made from two viewpoints. Benson differentiates between sources of resources:

> "What distinguishes private enterprises from their counterparts in the public sector, that is, from those activities in which government functions in its service role, is this: A private firm obtains money receipts from market sales, while public activities obtain money receipts, ultimately and essentially, from compulsory levies on the population, that is, through taxation."
>
> (Charles Benson, 1978:3)

Lipsey et al (1979:43), in a discussion on mixed economics, made the distinction between the public and the private sector on the basis of where the decisions are made. They note that "it is common to distinguish between the private sector in which decisions are principally made by households and firms, and the public sector in which they are made by central authorities."

Whether or not an organization is in the public or in the private sector may be a factor to consider in the approach used in the assessment of a network.

It is possible to measure the situational variables of awareness, resource dependence, and consensus, at this early stage in the Co-op program, using the OAI. The findings and discussion are as follows.

Interunit Resource Dependence

Dependence is defined as the extent to which parties in a relationship believe they need the other party to obtain their self-interest goals or intentions (Van de Ven, 1980:410). The index of resource dependence is computed as the average of four questionnaire items, two which have to do with the dependence of the focal unit and the other unit on each other, and also two which deal with the importance of these units to each other. The overall mean for the resource dependence category in this study was 3.612 (Table 20).

The department chairmen ($\bar{x}$ = 4.500) estimated a high level of dependence on the Co-op program to achieve the goals of their respective departments. The program administrators (Table 23) reported a similar level of dependence on the department chairmen to accomplish the goals of their program ($\bar{x}$ = 4.500).

This finding must be accepted with caution, however, since only three of the five department chairmen responded to the questionnaires and the three did not each respond to all of the items.

The faculty (Table 21) reported a low moderate level of dependence on the Co-op program to achieve its goals ($\bar{x}$ = 2.409). The program

Table 20

INTERUNIT RESOURCE DEPENDENCE SCORES
DEPARTMENT CHAIRMEN

Item	n	$\bar{x}$	sd
For the Co-op program to accomplish its goals and responsibilities, how much does it need the services, resources, or support from your department?[1]	3	4.667	0.577
For your department to accomplish its goals and responsibilities, how much do you need the services, resources, or support from the Co-op program?	2	4.500	0.707
Overall, how important was the Co-op program in attaining the goals of your department during the past year?[2]	1	3.000	--
Overall mean for Department Chairmen		4.222	0.694
Overall mean for Resource Dependence Category		3.612	0.932

[1] The scale used for these items was: 0 = don't know; 1 = not at all; 2 = very little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for this item was: 1 = not very important; 2 = somewhat important; 3 = quite important; 4 = very important; 5 = absolutely critical.

Table 21

INTERUNIT RESOURCE DEPENDENCE SCORES
FACULTY

Item	n	$\bar{x}$	sd
For the Co-op program to accomplish its goals and responsibilities, how much does it need the services, resources, or support from your department?[1]	33	4.300	0.702
For you to accomplish your goals and responsibilities in your role as a faculty member, how much do you need the services, resources, or support from the Co-op program?	33	2.400	1.248
Overall, how important was the Co-op program in attaining the goals of your department during the past year?[2]	23	1.652	0.982
Overall mean for Faculty		2.891	0.862
Overall mean for Resource Dependence Category		3.612	0.932

[1] The scale used for these items was: 0 = don't know; 1 = not at all; 2 = very little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for this item was: 1 = not very important; 2 = somewhat important; 3 = quite important; 4 = very important; 5 = absolutely crucial.

administrators (Table 23) recorded a moderate dependence on the faculty for them to accomplish Co-op program goals ($\bar{x}$ = 3.500).

Employers (Table 22) indicated a low dependence ($\bar{x}$ = 2.500) on the program administrators to achieve their goals while the program administrators indicated a strong ($\bar{x}$ = 5.000) dependence on the employers to accomplish Co-op program goals (Table 23).

The overall mean of 3.612 of the resource dependence category reflected a very high dependence on the part of program administrators as indicated by themselves and by the other four groups responses to the question of how much the Co-op program needs the services, resources, or support from them. The faculty (Table 21) and employers (Table 22) reported that they need the Co-op program only very little ($\bar{x}$ = 2.400 and 2.500, respectively) to accomplish their own goals and responsibilities whereas two department chairmen (Table 20) perceive that they need the program quite a bit ($\bar{x}$ = 4.500). In retrospect the faculty felt that the program had not been very important in the attaining of their own goals over the past year ($\bar{x}$ = 1.625)(Table 21). Employers (Table 22) thought the program had been somewhat important ($\bar{x}$ = 2.125) and one department chairman (Table 20) thought it had been quite important ($\bar{x}$ = 3.000). Findings for the range of dependence are summarized in Table 24.

There were positive but relatively low correlations for faculty between resource dependence and the linkage dimension of influence (r = 0.3278), and between resource dependence and the overall perception of program effectiveness (r = 0.3883). Significant and fairly high positive correlations exist for employers between resource dependence and amount, direction, and time of communication (r = 0.6968), formalization (r = 0.7556), and effectiveness (r = 0.6381). A very significant

Table 22

INTERUNIT RESOURCE DEPENDENCE SCORES
EMPLOYERS

Item	n	$\bar{x}$	sd
For the Co-op program to accomplish its[1] goals and responsibilities, how much does it need the services, resources, or support from your company?	8	3.125	0.991
For your company to accomplish its own goals and responsibilities, how much do you need the services, resources, or support from the Co-op program?	8	2.500	0.756
Overall, how important was the Co-op program[2] in attaining the goals of your company during the past year?	8	2.125	0.835
Overall mean for Employers		2.583	0.684
Overall mean for Resource Dependence Category		3.612	0.932

[1] The scale used for these items was: 1 = not at all; 2 = very little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for this item was: 1 = not very important; 2 = somewhat important; 3 = quite important; 4 = very important; 5 = absolutely critical.

Table 23

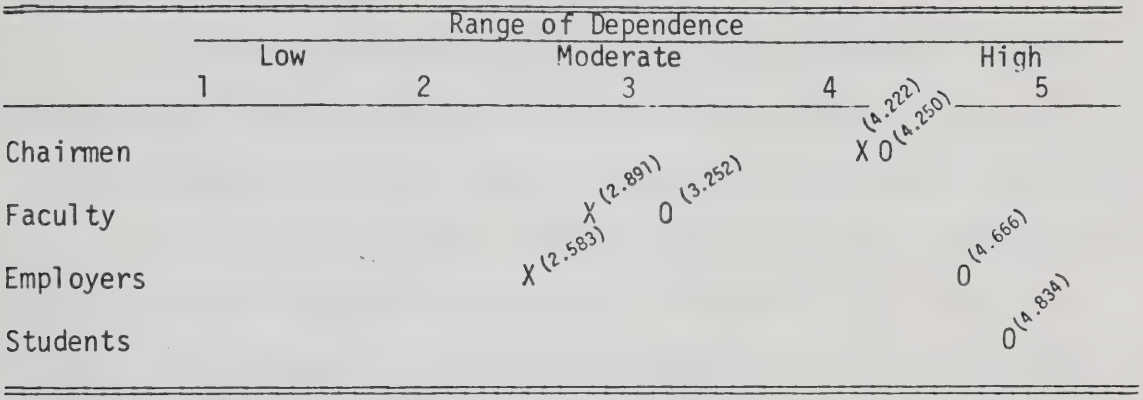
INTERUNIT RESOURCE DEPENDENCE SCORES
FREQUENCY SCALE--PROGRAM ADMINISTRATORS

Item	Unit											
	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
For this other unit to accomplish[1] its goals and responsibilities, how much does it need the services, resources, or support from your unit?	2	4.000	0.000	2	3.000	0.000	3	4.333	1.155	3	4.667	0.577
For your unit to accomplish its goals and responsibilities, how much do you need the services, resources, or support from this other unit?	2	4.500	0.707	2	3.500	0.707	3	5.000	0.000	3	5.000	0.000
Overall mean for Program Administrators		4.250	0.354		3.252	0.354		4.666	0.577		4.834	0.289
Overall mean for Resource Dependence Category					$\bar{x}$ 3.612			sd 0.932				

[1] The scale used for these items was: 1 = not at all; 2 = very little; 3 = some; 4 = quite a bit; 5 = very much.

Table 24

INTERUNIT RESOURCE DEPENDENCE
SUMMARY OF FINDINGS



Program administrators' dependence on other stakeholder groups for resources is indicated by the "O".

Other stakeholder groups dependence on program administrators is indicated by the "X".

correlation (p = 0.000) exists for employers between resource dependence and influence (r = 0.9513). These findings are summarized in Table 25.

Discussion of Findings

Resource dependence is the organization's need for external resources and its need for other agencies in the network. However, "administrators undertake or refuse to undertake cooperative ventures on the basis of reasonably careful calculations of costs and returns at the level of resource acquisition" (Benson, 1975:238). It is implicitly assumed that a Cooperative Education program exists to facilitate the maximization of resources which are not as possible to realize by organizations individually. Consequently, the Co-op program consists of diverse stakeholder groups, each with unique needs to gain and resources to supply.

The finding that program administrators have a high dependence for resources upon the stakeholder groups is reflective of the purpose for which the role of program administrator exists. Without the stakeholder groups, there would be no program to administer.

The fact that the employers and faculty reported that they need the Co-op program very little to accomplish their own goals and responsibilities suggests that perhaps they are in the program for other reasons or that the Co-op program serves only one small part of their organizational goals. The low correlations for faculty between resource dependence and influence (r = 0.3278) and perceived program effectiveness (r = 0.3883) (Table 25) may be reflective of the amount of participation individual faculty members had had with the program at the time of the study. There were not significant correlations between either the amount, direction, and time in communication, or the ease of communication. This

Table 25

PEARSON CORRELATION COEFFICIENTS BETWEEN RESOURCE DEPENDENCE AND THE LINKAGE DIMENSIONS AND EFFECTIVENESS

	Awareness	Consensus/ Conflict	Amount, Direction and Time in Communications	Ease of Communication	Formalization	Influence	Effectiveness
Faculty	r = 0.2552 n = 32 p = 0.079	r = -0.5083 n = 11 p = 0.055	r = 0.2143 n = 19 p = 0.189	r = 0.1921 n = 10 p = 0.297	r = 0.1625 n = 29 p = 0.200	r = 0.3278 n = 30 p = 0.038	r = 0.3883 n = 28 p = 0.021
Employers	r = 0.5042 n = 8 p = 0.101	r = -0.5927 n = 8 p = 0.061	r = 0.6968 n = 8 p = 0.027	r = 0.1637 n = 8 p = 0.349	r = 0.7556 n = 8 p = 0.015	r = 0.9513 n = 8 p = 0.000	r = 0.6381 n = 8 p = 0.044

would seem to support the supposition that the amount of involvement was low.

Although employers reported that they need the Co-op program very little, there were fairly high positive correlations for employers between resource dependence and formalization ($r = 0.7556$), amount, direction, and time spent in communication ($r = 0.6968$), and perceived effectiveness ($r = 0.6381$). A particularly significant correlation ($p = 0.000$) existed for employers between resource dependence and influence (0.9513). These findings may indicate that in spite of the relatively low need the employers have for the program, the efforts of the program administrators in regard to formalization, communication and influence, have resulted in the present level of resource commitment by employers. It would also seem to indicate future directions for the program administrators. The findings could be interpreted to mean that if the administrators desire increased resource dependence on the part of the employers, then emphasis should continue to be placed on formalization, communication, and influence. The correlation for employers between resource dependence and estimated effectiveness ($r = 0.6381$) may be indicative of a certain level of satisfaction (Table 25). In terms of the extent to which they are dependent on the program for resources, they feel the program is reasonably effective.

Interunit Awareness

In keeping with Van de Ven (1980:411), the awareness items were treated in two separate groups. The extent to which the focal unit is aware of other unit goals and services, and the extent to which the other unit is informed of the focal unit's goals and services comprise the first group. The years/months of personal acquaintance and the degree of

personal acquaintance comprise the second group of items. The index for each group is the average of the item scores for that group.

Program administrators (Table 26) were quite well informed about the specific goals and services of employers and students ($\bar{x}$ = 4.333 and $\bar{x}$ = 4.667, respectively). They were little informed about the goals and services of the faculty ($\bar{x}$ = 2.000) and somewhat informed about the goals and services of the chairmen ($\bar{x}$ = 3.000). Overall, the other units were better informed about the specific goals and services of the Co-op program than the Co-op administrators were about them. The three chairmen were quite informed ($\bar{x}$ = 4.667), and the faculty ($\bar{x}$ = 3.176), employers ($\bar{x}$ = 3.250), and students ($\bar{x}$ = 3.800) were somewhat informed.

Two program administrators (Table 28) have known the department chairmen for an average of almost seven years. However, they were not very well personally acquainted with the chairmen. The two chairmen who responded were quite well personally acquainted with the director of the program or their designated contact person in the program. The third chairman did not respond to the question.

The two program administrators have personally known the contact persons for the employers about an average of three years. They were not very well personally acquainted with these persons ($\bar{x}$ = 2.800). The eight employers were somewhat well acquainted with the program director or other administrators. Both the faculty ($\bar{x}$ = 2.303) and the students ($\bar{x}$ = 2.872) were not very well acquainted with the program administrators.

The awareness measure regarding how well informed units were of the specific goals and services of each other (Table 29), was found to correlate significantly ($p < .05$) and positively for faculty with the other linkage dimensions of formalization ($r = 0.5231$, $p = 0.002$) and

influence ($r = 0.4285$, $p = 0.007$). It also correlated positively for faculty with perceived effectiveness ($r = 0.5115$, $p = 0.002$). There was a positive significant correlation for employers with the awareness measure and formalization ($r = 0.8192$, $p = 0.006$). There was a negative correlation for both employers and faculty between awareness of specific goals and services and the consensus/conflict dimension ($r = -0.7355$, $p = 0.019$, and $r = -0.0833$, $p = 0.404$, respectively). A summary of findings for the "awareness of other unit" category is presented in Table 27.

Discussion of Findings

The program administrators have made a concerted effort to inform the other units about the goals and services of the Co-op program. This is one of their prime objectives. Each program administrator is obligated to contact and inform specific employers and there is frequent personal contact between students and Co-op office personnel. A standing committee comprised of department chairmen and program administrators was formed in the spring of 1982 to increase understanding and to enhance program development. The three responding chairmen are members of this committee. These efforts to improve communication seem to be reflected in the findings regarding the extent to which the focal group and other units are aware of each others' specific goals and services. A possible explanation for the finding that program administrators are less well informed about the specific goals and services of the other units, particularly the faculty and chairmen, may be that the amount of communication between faculty and program administrators is low ($\bar{x} = 2.075$). As well, it may be that the topic of any interaction was the Co-op program,

not other unit goals. The previous lack of a specific standing committee may explain the finding regarding chairmen.

The lack of a specialized role relationship for the chairmen may have left the extent to which they could participate unclear. It may also have left to chance the amount of information they would receive regarding the program. Scott (1981:54), in a discussion of formalization, alluded to this when he observed that "Formalization may also be viewed as an attempt to make more explicit and visible the structure of relationships among a set of roles and the principles that govern behavior in the system."

The relatively long number of years program administrators have known the chairmen ($\bar{x}$ = 6.991) and the employers ($\bar{x}$ = 3.111) is a reflection of the previous positions held by the program administrators in the university. The director had been responsible for the summer student employment program and the associate director had been working with students and university personnel in a counselling capacity.

It was noted in the Consad report on Cooperative Education in 1975, that the program administrators are responsible for the balancing of the needs of the students, education institutions, and the employers. The importance of and need for the administrators to have considerable understanding and knowledge of the stakeholder groups is implicit.

The extent to which faculty was aware of the specific goals and services of the Co-op program correlated significantly with the extent of formalization (r = 0.5231), influence (r = 0.4285), and perceived effectiveness (r = 0.5115) (Table 29). Formalization is the extent to which the role behavior and activities of each party are clearly

Table 26

INTERUNIT AWARENESS OF OTHER UNIT SCORES

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
How well are program administrators informed about the specific goals and services of this other unit?[1]	2	3.000	0.000	2	2.000	0.000	3	4.333	0.577	3	4.667	0.577
How well is the other unit informed about the specific goals and services of the Co-op program?[1]	3	4.667	0.577	34	3.176	0.999	8	3.250	1.035	45	3.800	0.869
Mean for Each Group		4.500	0.707		2.588			3.250	1.282		4.234	
Overall Mean		3.232		sd = 0.729								

[1] The scale used for these items was: 1 = not at all; 2 = little informed; 3 = somewhat informed; 4 = quite informed; 5 = very well informed.

Table 27

INTERUNIT AWARENESS OF OTHER UNIT
SUMMARY OF FINDINGS

	Low		Moderate		High
	1	2	3	4	5
Chairmen			O(3.000)		X(4.667)
Faculty		O(2.000)	X(3.176)		
Employers			X(3.250)	O(4.333)	
Students				X(3.800)	O(4.667)

The level of program administrators' awareness of other stakeholder group goals and services is indicated by the "O".

The level of stakeholder group awareness of goals and services of the Co-op program is indicated by the "X".

Table 28

INTERUNIT AWARENESS PERSONAL ACQUAINTANCE SCORES

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
How many years and months have[2] program administrators personally known the contact person in this other unit?	2	6.991	1.908	-	-	--		3.111	2.868	-	-	--
How well are program administrators[1] personally acquainted with the contact person in this other unit?	2	2.600	1.265	-	-	--		2.800	1.476	-	-	--
How well is the other unit contact personally acquainted with the director or designated contact person in the Co-op program?	2	4.500	0.707	33	2.303	1.334	8	3.250	1.282	39	2.872	1.080
Individual Group Means		4.667	0.577		2.303			3.250	1.035		2.872	
Overall Mean for Personal Acquaintance		3.612		sd = 0.932								

[1] The scale used for these items was: 1 = no personal acquaintance; 2 = not very well; 3 = somewhat well; 4 = quite well; 5 = very well.

[2] These items were reported in years and months. The mean is recorded in years.

Table 29

PEARSON CORRELATION COEFFICIENTS BETWEEN AWARENESS AND THE LINKAGE DIMENSIONS AND EFFECTIVENESS

	Resource Dependence	Consensus/ Conflict	Amount, Direction and Time in Communications	Ease of Communication	Formalization	Influence	Effectiveness
Faculty	r = 0.2552 n = 32 p = 0.079	r = -0.0833 n = 11 p = 0.404	r = 0.2663 n = 20 p = 0.128	r = 0.000 n = 10 p = 0.500	r = 0.5231 n = 30 p = 0.002	r = 0.4285 n = 32 p = 0.007	r = 0.5115 n = 29 p = 0.002
Employers	r = 0.5042 n = 8 p = 0.101	r = -0.7355 n = 8 p = 0.019	r = 0.3410 n = 8 p = 0.204	r = 0.0464 n = 8 p = 0.457	r = 0.8192 n = 8 p = 0.006	r = 0.5347 n = 8 p = 0.086	r = 0.3977 n = 8 p = 0.165
Students					r = 0.3574 n = 45 p = 0.009		r = 0.3080 n = 45 p = 0.022

specified, mandated, and standardized. The program is mandated for the faculty and the correlation may be a reflection of this mandate.

The low but significant correlation for faculty between awareness and influence ($r = 0.4285$, $p = 0.007$) may be an indication that the more faculty is made aware of the goals and services of the program, the greater will be the influence of both groups on each other.

The correlation with effectiveness for faculty seems to be predictable in that the greater the extent of awareness the greater the potential for determining effectiveness, whether favorable or unfavorable.

The positive significant correlation for employers between awareness and formalization ($r = 0.8192$, $p = 0.006$) seems to support arguments for the value of formalization in an organization. It would seem to leave less to happenstance and it thereby increases awareness levels. The responding employees are members of relatively large organizations. It is conceivable that the only way they can accomplish activities related to resources is through or as a result of formalization.

Interunit Consensus/Conflict

Consensus is defined as the degree of agreement or disagreement (i.e., conflict) among the parties in a relationship on their operating goals (ends), specific ways they do their work (means), and the terms of their relationship (Van de Ven, 1980:411).

The index for consensus is computed as the average of the related items. Since one item is on a reverse scale, the responses to that item were reversed for compatibility with the other scores with which they are averaged.

Consensus/conflict scores were calculated for department chairmen, faculty, employers, and program administrators. The faculty was asked to respond to only one consensus/conflict item (see Table 31). Employers and chairmen responded to four items (Tables 30 and 32), and program administrators to five items (Table 33). The overall mean for the consensus category was high ($\bar{x}$ = 4.793).

Department Chairmen

The high level of consensus for chairmen ($\bar{x}$ = 5.000) was a reflection of the perceptions of one chairman to the question of how much he and the program director agree or disagree on the goal priorities of his engineering department and on the specific ways work is done or services are provided by his department to the Co-op program. Two chairmen agreed quite a bit ($\bar{x}$ = 4.500) with the director on the terms of the relationship between their department and the Co-op program. Two chairmen also indicated that there were disagreements or disputes between people in their department and the Co-op program hardly ever ($\bar{x}$ = 1.500). Eleven faculty members reported a similar lack of disagreement ($\bar{x}$ = 1.455). Two program administrators reported that not once during the past year were there disputes or disagreements between themselves and the department chairmen.

Employers

The eight employers (Table 32) agreed quite a bit ($\bar{x}$ = 4.000) with the program administrators on the goal priorities of their companies vis a vis the Co-op program, and on the specific ways work is done or services are provided by their company to the Co-op program. They agreed somewhat ($\bar{x}$ = 3.667) on the specific terms of the relationship between their company and the Co-op program. Program administrators (Table 33),

Table 30

INTERUNIT CONSENSUS/CONFLICT SCORES
DEPARTMENT CHAIRMEN

Item	N	$\bar{x}$	sd
How much do you and the director[1] agree or disagree on:			
a. the goal priorities of your department?	1	5.000	--
b. the specific ways work is done or services are provided by your department to the Co-op program?	1	5.000	--
c. the specific terms of the relationship between your department and the Co-op program?	2	4.500	0.707
During the past year, how often were[2] there disagreements or disputes between people in your department and the Co-op program?	2	1.500 (5.500)*	0.707
Overall mean for Department Chairmen		5.000	
Overall mean for Consensus/Conflict Category		4.793	0.738

[1] The scale used for these items was; 0 = don't know; 1 = disagree much; 2 = agree a little; 3 = agree somewhat; 4 = agree quite a bit; 5 = agree very much.

[2] The scale used for this item was; 1 = not once; 2 = about once a month; 3 = about every two weeks; 4 = about once a week; 5 = several times a week; 6 = every day.

* Reversed scale.

Table 31

INTERUNIT CONSENSUS/CONFLICT SCORES
FACULTY

Item	N	$\bar{x}$	sd
During the past year, how often were there disagreements between people in your department and the Co-op program?	11	1.455 (4.545)*	1.214
Overall mean for Faculty		4.545	1.214
Overall mean for Consensus/Conflict Category		4.793	0.738

The scale used for this item was; 1 = not once; 2 = about once a month; 3 = about every 2 weeks; 4 = about once a week; 5 = several times a week; 6 = every day.

* Reversed scale.

Table 32

INTERUNIT CONSENSUS/CONFLICT SCORES
EMPLOYERS

Item	N	$\bar{x}$	sd
How much do you and this contact person agree or disagree on:			
a. the goal priorities of your company vis a vis the Co-op program?[1]	8	4.000	0.0
b. the specific ways work is done or services are provided by your company to the Co-op program?[2]	8	4.000	0.0
c. the specific terms of the relationship between your company and the Co-op program?[2]	8	3.667	0.816
During the past year, how often were there disagreements or disputes between people in your company and administrators of the Co-op program?	7	1.000	0.0
Overall mean for Employers		4.260	0.457
Overall mean for Consensus/Conflict Category		4.793	0.738

[1] The scale used for these items was; 0 = don't know; 1 = disagree much; 2 = agree a little; 3 = agree somewhat; 4 = agree quite a bit; 5 = agree very much.

[2] The scale used for these items was; 1 = not once; 2 = once a month; 3 = about every 2 weeks; 4 = about once a week; 5 = several times a week.

Table 33

INTERUNIT CONSENSUS/CONFLICT SCORES
FREQUENCY SCALE
PROGRAM ADMINISTRATORS

Item	Chairmen**			Faculty			Employers**			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
How much do you and this[1] contact person agree or disagree on:												
(a) The goal priorities of your unit?	2	3.500	0.548				2	3.500	0.535			
(b) The specific ways work is done or services are provided by your unit?	1	3.000	0.000				2	3.444	0.527			
(c) The specific terms of the relationship between your unit and this other unit?	2	3.500	0.548				2	4.000	0.866			
To what extent did[2] individuals in this other unit hinder your unit in performing its functions during the past six months?	2	1.375 (4.625)*	0.518				2	1.300 (4.700)*	0.675			
During the past year, how[3] often were there disagreements or disputes between people in your unit and this other unit?	2	1.000 (6.000)*		2	1.000 (6.000)*	0.000	3	2.900		3	2.667 4.333*	1.155
Overall mean for Program Administrators		4.100	0.141					4.315	0.650			
Overall mean for Consensus/ Conflict Category		4.793			0.738							

[1] The scale used for these items was: 0 = don't know; 1 = disagree much; 2 = agree a little; 3 = agree somewhat; 4 = agree quite a bit; 5 = agree very much.

[2] The scale used for this item was: 0 = don't know; 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

[3] The scale used for this item was: 1 = not once; 2 = about once a month; 3 = about every 2 weeks; 4 = about once a week; 5 = several times a week; 6 = every day.

* Reversed scale.

** An aggregate score.

on the other hand, perceived that employers agreed a little ($\bar{x}$ = 2.800) with the goal priorities of the Co-op, they agreed somewhat on the specific ways work is done or services are provided by the Co-op ($\bar{x}$ = 3.100), and on the specific terms of the relationship ($\bar{x}$ = 3.600). They indicated that employers do not hinder the Co-op program in performing its functions ($\bar{x}$ = 1.300) and that there had been disagreements or disputes between people in the Co-op program office and employers about once a month ($\bar{x}$ = 2.000) during the past year.

Faculty

Eleven faculty members reported (Table 31) that there were disagreements between people in their department and the Co-op program midway between "not once" and "about once a month" ($\bar{x}$ = 1.455). This was the only consensus/conflict item to which faculty was asked to respond. Program administrators response to the same item for faculty was that there were no disagreements. The explanation for this discrepancy may be in the wording of the question to the faculty. They may have been aware of a slight disagreement between their department chairmen and the Co-op administrators and recorded this on the assumption that chairmen were to be included in the phrase "people in your unit." This slight frequency of disagreement is recorded in Table 28, where the mean for that item is 1.500.

The level of consensus/conflict for faculty (Table 35) was found to be significantly negatively correlated ($r = 0.8783$, $p = 0.011$) with ease of communication. No correlations with other linkage dimensions were significant for faculty.

Awareness, amount, direction and time in communication, and influence were all negatively correlated with consensus/conflict for

Table 34

INTERUNIT CONSENSUS/CONFLICT
SUMMARY OF FINDINGS

	Low 1	2	Moderate 3	4	High 5
Chairmen				O (4.100)	X (5.000)
Faculty				(4.260) X (4.545)	
Employers				X O (4.315)	

The level of consensus as perceived by the stakeholder groups is indicated by the "X".

The level of consensus as perceived by the program administrators is indicated by the "O".

The finding for the level of consensus perceived by the program administrators between themselves and the faculty is not included since this was based on only one item (Table 31) and is not representative of the level of consensus.

Table 35

PEARSON CORRELATION COEFFICIENTS BETWEEN CONSENSUS/CONFLICT AND THE LINKAGE DIMENSIONS AND EFFECTIVENESS

	Resource Dependence	Awareness	Amount, Direction and Time in Communication	Ease of Communication	Formalization	Influence	Effectiveness
Faculty	r = -0.5083 n = 11 p = 0.055	r = -0.0833 n = 11 p = 0.404	r = -0.5261 n = 9 p = 0.073	r = -0.8783 n = 6 p = 0.011	r = 0.0929 n = 11 p = 0.393	r = -0.2180 n = 11 p = 0.260	r = -0.116 n = 10 p = 0.379
Employers	r = -0.5927 n = 8 p = 0.061	r = -0.7355 n = 8 p = 0.019	r = -0.7666 n = 8 p = 0.013	r = 0.2871 n = 8 p = 0.245	r = 0.7584 n = 8 p = 0.015	r = 0.7030 n = 8 p = 0.026	r = 0.4057 n = 8 p = 0.159

employers ($r = -0.7355$, $p = 0.019$; $r = -0.7666$, $p = 0.013$; and $r = -0.7030$, $p = 0.026$, respectively). A positive correlation exists for employers between consensus/conflict and formalization ($r = 0.7584$, $p = 0.015$).

Discussion of Findings

The description of this category as being one of consensus or conflict creates some confusion which perhaps could have been avoided by labelling the category differently. If it had been a measure on a continuum from "consensus" to "lack of consensus," the statistical interpretation would have been straight-forward, however, the way in which the questions were asked required the scores be reversed for compatibility with the other statistical measures.

A measure of conflict which may or may not exist regarding the Co-op program may be a reflection of the rate of response to the questionnaires by the stakeholder groups. A similar argument holds true, however, for several of the other linkage dimensions.

The significant negative correlations (Table 35) between consensus/conflict and ease of communication for faculty ($r = -0.8783$, $p = 0.011$) and for employers between consensus/conflict and awareness ($r = -0.7355$, $p = 0.019$), amount, direction, and time spent in communication ($r = -0.7666$, $p = 0.013$), formalization ($r = 0.7584$, $p = 0.015$), and influence ($r = 0.7030$, $p = 0.026$) indicate that for those two groups, there is a reduction in conflict (and an increase in consensus) with an increase in the other linkage dimensions.

The question of why there are more significant findings for employers than there are for faculty between consensus/conflict and the other linkage dimensions, is of interest. One explanation may be

related to the "amount, direction, and time spent in communication" dimension. This was significant for employers ($r = -0.7666$, $p = 0.013$) but not for faculty ($r = -0.5261$, $p = 0.073$).

Summary of Chapter

The focus of this chapter was on the situational variables pertinent to the interorganizational network under study, namely, a Cooperative Education program in a faculty of engineering in a Canadian university. The program was studied during its first year of operation and at that time encompassed a relatively small network. The network is comprised of several organizations of which five were identified as primary stakeholder groups. The reasons for stakeholder membership in the interorganizational relationship are inherent in the situational variables. These were discussed under the headings of domain similarity, size, and response to a problem, opportunity or mandate. A more detailed study of the situational variables of awareness, resource dependence, and consensus was conducted using Van de Ven's Organizational Assessment Instrument.

Since this is a study of the relationships between the focal unit (program administrators) and the other units (department chairmen, faculty, employers, and students), findings were presented for each of the stakeholder groups vis a vis the program administrators and vice versa. The findings indicated that program administrators have a greater dependence for resources on the other stakeholder groups than the stakeholder groups have on them. The greatest discrepancy in levels of resource dependence was between program administrators and employers. The least discrepancy was between program administrators and department chairmen.

However, the low rate of response on the part of department chairmen may weaken the validity of this finding.

There was a moderate to high level of awareness of the goals and services of the organizations involved in the network. Chairmen and faculty reported a higher level of awareness than the program administrators and the program administrators reported a higher level of awareness than the employers and students.

There was a fairly high level of consensus on the goal priorities and specific ways work was done by each of the stakeholder groups in regard to the Co-op program. Statistical findings for program administrators were limited to those between program administrators and chairmen and between program administrators and employers. There was a higher discrepancy in levels of consensus between chairmen and program administrators than there was between employers and program administrators.

Chapter VI

STRUCTURAL AND PROCESS DIMENSIONS

The Cooperative Education program in this study is representative of one type of interorganizational network in which there is a focal unit (the Co-op administration office) and several other units which interact primarily through the focal unit. This type of network structure is described as "mediated" in that the focal unit provides services to a number of other organizations in the network (Benson, 1975:233). Van de Ven identified four structural dimensions (intensity, formalization, complexity, and centralization) (Chapter II, Table 3). These seem to incorporate aspects of the process dimensions of resource and information flows as well. The Organizational Assessment Instrument incorporates aspects of each of the structural dimensions but the distinctions between dimensions are not readily discernible. For this study the aspects of the structural dimensions measured were amount, direction, and time spent in communications, ease of communication, formalization, and influence.

Structural Dimensions

Interunit Communications

Interunit communications is a broad concept which includes the mode, amount, content, direction, and ease of information flows between parties in a dyadic relationship (Van de Ven, 1980:413).

The amount, direction, and time spent in interunit communication were measured by asking the chairmen, faculty and employers what percent of their total working hours was spent on matters directly related to

the Co-op program (Table 36). All three groups indicated that they spend roughly two percent of their time on Co-op related matters. The same three groups and the students were asked how frequently they communicated with, or had contacted the Co-op office during the past year. The three chairmen interacted with the Co-op office about every two weeks. Some faculty members were in contact about monthly, however, the large standard deviation (1.595) indicates a wide range in frequency of contacts by the faculty. Employers and students were in contact more often than one-two times per year but less than monthly ($\bar{x}$ = 1.375, 1.659, respectively). In both instances the relatively large standard deviations indicated considerable variation in frequency of contacts by individual employers and students.

Specific questions were asked of the program administrators regarding the modes of communication with the other units. It was deemed inappropriate to conduct such detailed probing with the other units at this early stage of the program. The questions (Table 37) may be more appropriate to ask of other units in subsequent years.

Following the questions regarding modes of communications, program administrators were asked what percent of the communications were initiated by people in their office. Program administrators initiated three-fourths of the communication between their office and the chairmen and between their office and the employers. They initiated one-half of the communications with the students and one-fourth of the communications with the faculty. The large standard deviations (Table 38) for faculty and students may be a reflection of the variations in role responsibilities held by each of the three administrators.

Table 36

AMOUNT, DIRECTION, AND TIME SPENT IN INTERUNIT COMMUNICATION

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
During the past year, roughly what[1] percent of your total working hours did you spend on matters directly related to the operations, work, or activities of the Co-op program?	1	2.000	0.000	34	1.147	1.811	8	2.250	1.832	-	-	--
During the past year, how frequently[2] have people in your company communicated with, or been in contact with, people in the Co-op program office?	3	3.000	1.000	19	2.104	1.595	8	1.375	0.518	43	1.659	0.888
Overall mean for Other Units		2.667	0.764		2.075	1.444		1.813	0.961		1.659	0.888
Overall mean for Amount, Direction, and Time Spent in Communications		2.683	1.190									

[1] The scale used for these items was: 0 = 0%; 1 = 1%; 2 = 2%; 3 = 3%; 4 = 4%; 5 = 5 or more percent.

[2] The scale used for this item was: 0 = not once; 1 = 1-2 times; 2 = about monthly; 3 = about every two weeks; 4 = about weekly; 5 = about daily; 6 = many times daily.

Table 37

INTERUNIT COMMUNICATION MODE SCORES
PROGRAM ADMINISTRATORS

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
Specifically, how frequently did your unit communicate with this other unit through each of the following ways during the past six months:												
a) Through written letters, memos, or written reports of any kind?	2	2.500	0.707	2	1.000	0.000	3	5.333	1.155	3	3.000	1.732
b) Through telephone calls?	2	3.500	0.707	2	1.000	0.000	3	5.333	1.155	3	4.667	1.528
c) Through face-to-face discussions?	2	2.000	1.414	2	1.000	0.000	3	3.333	1.528	3	5.667	0.577
d) Through group or committee meetings between three or more people from your unit and this other unit?	2	2.000	0.000	2	0.500	0.707	3	2.667	2.887	3	3.667	2.082
Overall mean for Program Administrators	2	2.500		2	0.875		3	4.1665		3	4.250	

The scale used for these items was: 0 = not once; 1 = 1-2 times; 2 = about monthly; 3 = about every 2 weeks; 4 = about weekly; 5 = about daily; 6 = many times daily.

Table 38

AMOUNT, DIRECTION, AND TIME SPENT IN INTERUNIT COMMUNICATIONS
PROGRAM ADMINISTRATORS

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
In general, what percent of all these communications with this other unit were initiated by people in your unit during the past six months?	2	72.50	3.536	2	25.00	35.355	3	76.667	7.638	3	48.333	17.559

These items were reported in raw percentages.

The findings for amount, direction, and time spent in communication are summarized in Table 39.

Ease of Interunit Communication

Ease of interunit communication is measured with two items, one asking how much difficulty respondents have in getting in touch with the program administrators and the other asking how much difficulty respondents experience in getting ideas clearly across to program administrators.

In response to the first question, the chairmen, faculty, employers, and students all indicated that they have practically no difficulty in getting in touch with individuals of the Co-op program. Similarly chairmen, faculty, and employers have almost no difficulty in getting ideas clearly across to Co-op administrators (Table 40). Students were not asked this question. Program administrators experience a little difficulty in getting in touch with faculty and chairmen ($\bar{x}$ = 2.000) and slightly more difficulty in getting in touch with employers and students ($\bar{x}$ = 2.667 for both groups) (Table 41).

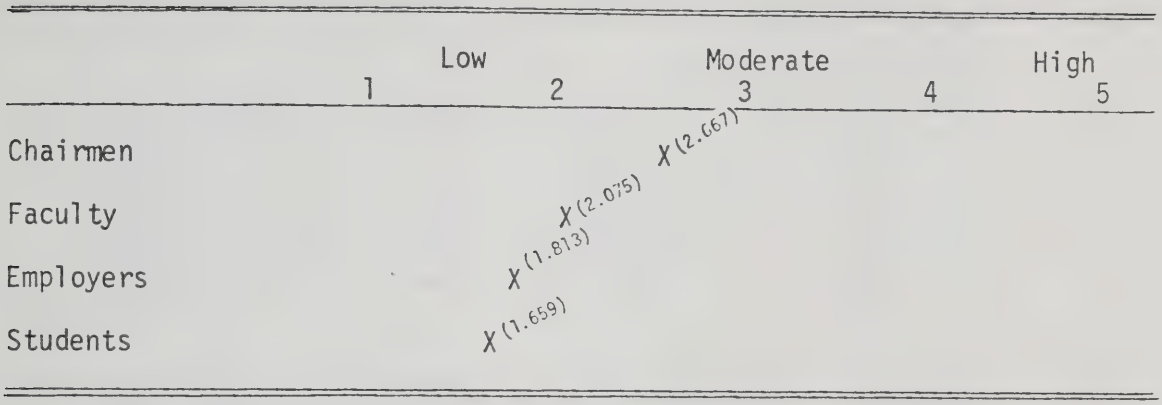
These findings do not, however, indicate the amount of communication by these groups with the Co-op office.

A summary of these findings is presented in Table 42.

Pearson Correlation Coefficients were calculated for faculty and employers between the amount, time, and direction spent in communications (Table 43) and the other linkage variables, as well as between the ease of communication and the other linkage variables (Table 44). There was a significant correlation (0.5606) for the faculty between the amount, time, and direction spent in communication, and the ease of communication. A slightly small but significant correlation exists for the faculty

Table 39

AMOUNT, DIRECTION, AND TIME SPENT IN COMMUNICATION
SUMMARY OF FINDINGS



The wording for the item for program administrators was different (Table 35) and does not allow for a direct comparison with the other stakeholder groups.

Table 40

EASE OF INTERUNIT COMMUNICATION

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
When you want to communicate with individuals in the Co-op program, how much difficulty have you had getting in touch with them?	3	1.000	0.000	10	1.200	0.422	7	1.286	0.488	45	1.326	0.566
Overall, how much difficulty do you experience in getting ideas clearly across to individuals in the Co-op administration office when you communicate to them?	3	1.333	0.577	8	1.375	0.518	8	1.125	0.354	--	--	--
Overall mean for Other Units		1.167 4.833*	0.289		1.250 4.750*	0.425		1.188 4.220*	0.372		1.372 4.628*	0.566
Overall mean for Ease of Communication Category		2.086 (3.140)*	1.030									
Cut-off for great Ease of Communication	= 4.170											
Cut-off for difficulty with Communication	= 2.110											

The scale used for these items was: 0 = no contact; 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

* Reverse scale.

Table 41

EASE OF INTERUNIT COMMUNICATION
PROGRAM ADMINISTRATORS

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
When you want to communicate with individuals in this unit, how much difficulty have you have in getting in touch with them?	2	1.500	0.707	2	2.000	2.828	3	2.667	0.577	3	2.667	0.577
Overall, how much difficulty do you experience in getting ideas clearly across to individuals in the unit when you communicate to them?	2	2.500	0.707	2	2.000	2.828	3	2.333	0.577	3	2.333	0.577
Overall mean for Program Administrators		2.000 (4.000)*	0.707		2.000 (4.000)*	0.000		2.500 (3.500)*	0.500		2.500 (3.500)*	0.500
Overall mean for Ease of Communication Category		2.086 (3.140)*	1.030									
Cut-off for Great Ease of Communication	= 4.170											
Cut-off for Difficulty with Communication	= 2.110											

The scale used for these items was: 0 = no contact; 1 = no difficulty; 2 = little difficulty; 3 = some difficulty; 4 = quite a bit; 5 = very much.

* Reverse scale.

Table 42

EASE OF INTERUNIT COMMUNICATION
SUMMARY OF FINDINGS

	Low		Moderate		High
	1	2	3	4	5
Chairmen				O (4.000)	X (4.633)
Faculty				O (4.000)	X (4.750)
Employers			O (3.500)	X (4.220)	
Students			O (3.500)		X (4.628)

The ease of communication for program administrators with the other stakeholder groups is indicated by the "O".

The ease of communication for stakeholder groups with the program administrators is indicated by the "X".

Table 43

PEARSON CORRELATION COEFFICIENTS BETWEEN AMOUNT, DIRECTION, AND TIME IN COMMUNICATIONS AND THE LINKAGE DIMENSIONS AND EFFECTIVENESS

	Resource Dependence	Awareness	Consensus/ Conflict	Ease of Communication	Formalization	Influence	Effectiveness
Faculty	r = 0.2901 n = 19 p = 0.114	r = 0.3794 n = 20 p = 0.050	r = -0.4737 n = 9 p = 0.099	r = 0.6006 n = 10 p = 0.033	r = 0.3055 n = 20 p = 0.095	r = 0.4249 n = 20 p = 0.031	r = 0.4669 n = 20 p = 0.019
Employers	r = 0.6968 n = 8 p = 0.027	r = 0.3410 n = 8 p = 0.204	r = -0.7666 n = 8 p = 0.013	r = 0.2871 n = 8 p = 0.245	r = 0.7584 n = 8 p = 0.015	r = 0.7197 n = 8 p = 0.022	r = 0.2822 n = 8 p = 0.249

Table 44

PEARSON CORRELATION COEFFICIENTS BETWEEN EASE OF COMMUNICATION AND THE LINKAGE DIMENSIONS AND EFFECTIVENESS

	Resource Dependence	Awareness	Consensus/ Conflict	Amount, Direction and Time in Communication	Formalization	Influence	Effectiveness
Faculty	r = 0.1921 n = 10 p = 0.297	r = 0.000 n = 10 p = 0.500	r = -0.8783 n = 6 p = 0.011	r = 0.6006 n = 10 p = .0.033	r = 0.1660 n = 10 p = 0.323	r = 0.4602 n = 10 p = 0.090	r = 0.0066 n = 10 p = 0.493
Employers	r = 0.1637 n = 8 p = 0.349	r = 0.0464 n = 8 p = 0.457	r = -0.0131 n = 8 p = 0.488	r = -0.2871 n = 8 p = 0.245	r = -0.1807 n = 8 p = 0.334	r = 0.1053 n = 8 p = 0.402	r = 0.3772 n = 8 p = 0.178
Students		r = -0.2784 n = 45 p = 0.035					

between the amount, direction, and time in communication and the extent of influence.

Significant ($p < .05$) positive correlations existed for employers between time, direction, and amount of communication and resource dependence (0.6968) and formalization (0.7584). There were significant ($p = 0.022$) correlations for employers between time, direction, and amount of communication and influence. A significant ($p = 0.013$) negative correlation existed for employers between consensus/conflict and amount, time and direction of communication (-0.7666) indicating that an increase in these aspects of communication correlates with a decrease in conflict.

A Pearson Correlation Coefficient for students between amount, time, and direction of communication and the awareness item regarding the extent of which students were informed of the goals and services of the program, was negative and low (0.2784). However, it was statistically significant ($p = 0.035$).

One linkage dimension was found to correlate positively for faculty with ease of communication. That was the amount, time, and direction of communication ($r = 0.5606$, $p = 0.046$). Consensus/conflict correlated negatively ($r = -0.8783$, $p = 0.011$) indicating that an increase in ease of communication correlated with a decrease in conflict. There were no significant correlations between employers ease of communication and the other linkage dimensions.

No significant correlations existed for faculty between ease of communication and the other linkage dimensions, namely, resource dependence, awareness, formalization, and influence. Nor was there a correlation between ease of communication and effectiveness for either group.

Discussion of Findings

Communication is the act of imparting or transmitting information (Funk and Wagnalls, 1963:274). Van de Ven argues that the major processes in an IR are resource and information flows (1980:30). The implication is that without communication, the IR would not exist. In this study, information flows are measured with two communications dimensions; the amount, direction, and time spent in communication and the ease of communication.

Significant positive correlations for the faculty between the amount, direction, and time spent in communication and the linkage dimensions (Table 43), were found for awareness, ease of communication, and influence. These correlations are statistically significant but not high. There were no statistically significant positive correlations for faculty between the linkage dimensions and ease of communication with the exception of the aforementioned amount, direction, and time spent in communication dimension. The negative correlation for faculty ease of communication and consensus/conflict can be interpreted as a "positive" relationship since the consensus/conflict dimension is a measure of the amount of difficulty in communication. A negative correlation indicates that as the difficulty decreases, the extent of consensus increases.

There was also a significant negative correlation between amount, direction, and time in communication and consensus/conflict for employers. This is reflective of the small amount of time (two percent) employers spend on the program. In spite of this limited time investment, there was a fairly high level of consensus regarding the goals and services of the program. All eight employers responded to the

communication items. The positive correlation for employers between resource dependence, formalization, and influence are discussed in those respective linkage dimension sections.

A significantly low but negative correlation (Table 44) was found for students between awareness and ease of communication. A possible explanation for this finding is that all students who register in the program are required to attend a number of inservice sessions in which the goals and services are explained. Therefore, the students are not dependent on self-initiation of communication for awareness.

As indicated in the review of literature on Cooperative Education, the Co-op program must be "sold" to employers. This involves communication in order to make them aware of possible resources. As previously stated, when dealing with organizations of considerable size, the communication must be formalized and able to be processed in the same way as is other information to the company. To achieve influence of either the employers over the Co-op program, or vice versa, communication must take place.

Of concern is the finding that the dimensions of communication do not correlate significantly and positively with every linkage dimension, excluding consensus/conflict, given the importance attributed to communication by Van de Ven. It would seem reasonable to expect a positive relationship between the amount of, and time spent in communication and the ease of communication. The greater the time spent, the greater the likelihood of being understood.

Formalization of Interunit Relationships

The formalization of a dyadic relationship refers to the degree to which the role behavior and activities of each party are clearly specified, mandated, and standardized (Van de Ven:416). The formalization of a pairwise relationship is measured in terms of the degree to which the relationship is mandated, clearly specified, and standardized.

The findings for formalization are presented in Tables 45-51. The overall mean for the formalization category is $\bar{x}$ = 2.881, sd = 1.017. Department chairmen recorded a high moderate level of formalization ($\bar{x}$ = 3.667). Program administrators recorded a moderate level of formalization with department chairmen. The level of formalization reported by the faculty was a low 2.533 (sd = 0.999); whereas program administrators reported even less formalization with the faculty ($\bar{x}$ = 1.500). Employers recorded an average for formalization of 2.438 while program administrators perceived a higher mean ($\bar{x}$ = 3.888) for the extent of formalization for themselves with employers. The extent of formalization between students and program administrators was similar with means of 3.616 and 3.667, respectively. There were highly significant correlations between the extent of formalization and two linkage variables as well as perceived effectiveness. The correlation for faculty between formalization and awareness was r = 0.5231, p = 0.002; between formalization and influence was r = 0.6626, p = 0.000; and between formalization and effectiveness was r = 0.5486, p = 0.002. These findings are summarized in Table 49.

All linkage variables correlated significantly for employers with extent of formalization. Positive correlations were: resource dependence r = 0.7556, p = 0.015; awareness r = 0.8192, p = 0.006; amount,

direction, and time in communication $r = 0.7584$, $p = 0.015$; and influence $r = 0.7831$, $p = 0.011$. There was a significant negative correlation for employers between extent of formalization and consensus/conflict, $r = -0.8271$, $p = 0.006$. The correlation for employers between extent of formalization and effectiveness was not significant. Correlations were calculated for students between extent of formalization and two linkage dimensions, awareness and amount, direction and time in communications. There was a significant positive correlation between formalization and awareness, $r = 0.3574$, $p = 0.009$. The correlation with communication was not significant. Extent of formalization with effectiveness did correlate positively and significantly, although the correlation was low, $r = 0.2914$, $p = 0.031$.

Interunit Influence

Interunit influence is the ability of the focal unit to change or affect the internal operation of the other unit and vice versa (Van de Ven, 1980:416). The total amount of influence the focal unit (program administrators) has on the other units is the mean of the focal unit's influence over the other unit's operations and the extent to which the focal unit changed the other units goals or services. Similarly the other unit's influence on the focal unit is the mean of its influence over the focal units operations and the extent to which it changed the focal unit goals or services (op. cit., 416).

The distribution of influence in the relationship is determined by calculating the difference between the focal unit influence and the other unit influence. A positive result indicates the amount of focal unit influence over the other unit and a negative amount indicates the

Table 45

FORMALIZATION OF INTERUNIT RELATIONSHIP SCORES
DEPARTMENT CHAIRMEN

Item	n	$\bar{x}$	sd
To what extent have the terms of the relationship between your department and the Co-op program:			
(a) been explicitly verbalized or discussed?	3	3.667	0.577
(b) been written down in detail?	3	3.667	0.577
Overall mean for Department Chairmen		3.667	0.577
Overall mean for Formalization Category		3.021	0.850

The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 46

FORMALIZATION OF INTERUNIT RELATIONSHIPS SCORES
FACULTY

Item	n	$\bar{x}$	sd
To what extent have the terms of the relationship between your department and the Co-op program:			
(a) been explicitly verbalized or discussed?	30	2.724	1.066
(b) been written down in detail?	30	2.276	1.066
Overall mean for Faculty		2.533	0.999
Overall mean for Formalization Category		3.021	0.850

The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 47

FORMALIZATION OF INTERUNIT RELATIONSHIP SCORES
EMPLOYERS

Item	n	$\bar{x}$	sd
To what extent have the terms of the relationship between your company and the Co-op program:			
(a) been explicitly verbalized or discussed?	8	2.750	0.886
(b) been written down in detail?	8	2.125	0.991
Overall mean for Employers		2.438	0.863
Overall mean for Formalization of Interunit Relationship Scores		3.021	0.850

The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 48

FORMALIZATION OF INTERUNIT RELATIONSHIPS SCORES
STUDENTS

Item	n	$\bar{x}$	sd
To what extent have the terms of the relationship between you and the Co-op program:			
(a) been explicitly verbalized or discussed?	43	3.744	0.790
(b) been written down?	43	3.488	0.833
Overall mean for Students		3.616	0.714
Overall mean for Formalization Category		3.021	0.850

The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 49

FORMALIZATION OF INTERUNIT RELATIONSHIPS
SUMMARY OF FINDINGS

	Range				
	Low		Moderate		High
	1	2	3	4	5
Chairmen			O (2.750)	X (3.667)	
Faculty		O (1.500)	X (2.533)		
Employers			X (2.438)	O (3.833)	
Students				X (3.616) O (3.833)	

Extent of formalization for program administrators with the other stakeholder groups is indicated by the "O".

The level of formalization for the other stakeholder groups is indicated by the "X".

Table 50

FORMALIZATION OF INTERUNIT RELATIONSHIPS SCORES
FREQUENCY SCALE
PROGRAM ADMINISTRATORS

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
To what extent have the terms of the relationship between your unit and this other unit:												
(a) be explicitly utilized or discussed?	2	3.000	0.000	3	1.667	0.577	3	4.000	1.000	3	4.000	1.000
(b) been written down in detail?	2	2.500	0.707	2	1.000	0.000	3	3.667	1.155	3	3.667	1.155
To coordinate activities with this other unit during the past year, to what extent:												
(a) have standard operating procedures been established (e.g., rules, policies, forms, etc.)?	2	3.000	0.000	1	1.000		3	4.000	0.000	3	4.000	0.000
(b) are formal communication channels followed?	2	3.500	0.707	2	1.000	0.000	3	4.000	0.000	3	3.667	1.155
Overall mean for Program Administrators		2.750	0.354		1.500	0.500		3.833	1.041		3.833	1.041
Overall mean for Formalization Category		3.021	0.850									

The scale used for these items was: 0 = no prior contact; 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 51

PEARSON CORRELATION COEFFICIENTS BETWEEN FORMALIZATION AND THE LINKAGE DIMENSIONS AND EFFECTIVENESS

	Resource Dependence	Awareness	Consensus/ Conflict	Amount, Direction and Time in Communication	Ease of Communicationn	Influence	Effectiveness
Faculty	r = 0.1025 n = 29 p = 0.200	r = 0.5231 n = 30 p = 0.002	r = 0.0929 n = 11 p = 0.393	r = 0.3055 n = 20 p = 0.095	r = 0.1660 n = 10 p = 0.323	r = 0.6626 n = 30 p = 0.000	r = 0.5486 n = 27 p = 0.002
Employers	r = 0.7556 n = 8 p = 0.015	r = 0.8192 n = 8 p = 0.006	r = -0.8271 n = 8 p = 0.006	r = 0.7584 n = 8 p = 0.015	r = -0.1807 n = 8 p = 0.334	r = 0.7831 n = 8 p = 0.011	r = 0.4226 n = 8 p = 0.148
Students		r = 0.3574 n = 45 p = 0.009		r = -0.1811 n = 45 p = 0.129			r = 0.2914 n = 45 p = 0.031

amount of other unit influence over the focal unit. A balanced distribution of influence would be indicated by zero (op. cit., 417).

Interunit influence indices were calculated for program administrators, department chairmen, faculty, and employers.

Department Chairmen

Department chairmen feel that they have some say or influence ($\bar{x}$ = 3.000) in the internal operations of the Co-op program and that during the past year they changed or influenced the services or operations of the program to some extent ($\bar{x}$ = 3.000) (Table 52). Program administrators are in fairly close agreement with a mean of 3.500 for influence of the chairmen on the internal operations of the Co-op, and a mean of 3.000 indicating that the chairmen have changed or influenced the services or operations of the program to some extent (Table 53). The index of influence of -0.083 indicates an imbalance in perceived influence favoring the department chairmen.

Faculty

Faculty members felt that the Co-op program has little ($\bar{x}$ = 2.267) influence on the way they perform their role or on the content they teach (Table 55). They also felt that during the past year the Co-op program has changed or influenced the services or operations of their department to little extent ($\bar{x}$ = 2.190). They perceived that the amount of say or influence they have on the internal operations of the Co-op program is minimal ($\bar{x}$ = 1.966) and that during the past year their departments have changed or influenced the services or operations of the Co-op program to slightly more than no extent ($\bar{x}$ = 1.833).

Table 52

INTERUNIT INFLUENCE SCORES
DEPARTMENT CHAIRMEN

Item	n	$\bar{x}$	sd
How much say or influence does the Co-op[1] program have on the internal operations of your department?	3	4.333	0.577
During the past year, to what extent has[2] the Co-op changed or influenced the services or operations of your department?	2	3.000	0.000
How much say or influence does your[1] department have on the internal operations of the Co-op program?	2	3.000	1.414
During the past year, to what extent has[2] your department changed or influenced the services or operations of the Co-op program?	2	3.000	0.000
Overall mean for Chairmen	3	3.222	0.481
Overall mean for Influence Category		2.853	1.006

[1] The scale used for these items was: 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 53

INTERUNIT INFLUENCE DISTRIBUTION SCORES FOR FOCAL UNIT AND OTHER UNITS CHAIRMEN

Influence Items	Program Administrators $\bar{x}$	Department Chairmen $\bar{x}$
How much say or influence does this[1] other unit have on the internal operations of your unit?	3.500	4.333
During the past six months, to what[2] extent has this other unit changed or influenced the services or operations of your unit?	3.000	3.000
How much say or influence does your[1] unit have on the internal operations of this other unit?	3.000	3.000
During the past six months, to what[2] extent has your unit changed or influenced the services or operations of this other unit?	3.500	3.500
Overall unit mean	3.250	3.222
Index of Influence = -0.028		

[1] The scale used for these items was: 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Two program administrators felt they changed or influenced the services or operations of the faculty to no extent ($\bar{x}$ = 1.500), nor had they much say or influence on the internal operation of the faculty ($\bar{x}$ = 1.500 (Table 54). They indicated that the faculty had very little ($\bar{x}$ = 1.500) say or influence on the internal operations of the program and that the faculty had not changed or influenced the services or operations of its unit during the past six months. While the mean of influence for both groups is low; program administrators is 1.375 and faculty is 2.064, the index of influence at -0.689 (Table 56) indicates that the faculty perceived more influence over the program administrators than the program administrators have over the faculty

Employers

Employers felt that the Co-op program had little say or influence ($\bar{x}$ = 2.250) in the internal operations of their companies and that the program had little influence on the services or operations of their companies during the past year ($\bar{x}$ = 2.000). They felt that their company has slightly more than little ($\bar{x}$ = 2.375) say or influence on the internal operations of the Co-op. However, during the past year their companies have changed or influenced the services or operations of the Co-op to slightly less than little extent ($\bar{x}$ = 1.750) (Table 57).

Three program administrators indicated that they have some say or influence on the internal operations of the companies ($\bar{x}$ = 3.333) and, similarly, that during the past six months they have changed or influenced the services or operations of the employers to some extent. They believe that the employers have quite a bit of say or influence ($\bar{x}$ = 4.333) on the internal operations of the Co-op program and that during the past six months they have changed or influenced the services

Table 54

INTERUNIT INFLUENCE SCORES
FREQUENCY SCALE
PROGRAM ADMINISTRATORS

Items	Chairmen			Faculty			Employers		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
How much say or influence does this other unit have on the internal operations of your unit? [2]	2	3.500	0.707	2	1.500	0.707	3	4.333	0.577
During the past six months, to what extent has this other unit changed or influenced the services or operations of your unit? [1]	2	3.000	0.0	2	1.000	0.0	3	4.333	1.155
How much say or influence does your unit have on the internal operations of this other unit? [2]	2	3.000	0.0	2	1.500	0.707	3	3.333	1.528
During the past six months, to what extent has your unit changed or influenced the services or operations of this other unit? [1]	2	3.500	0.707	2	1.500	0.707	3	3.333	0.577
Overall mean for Program Administrators		3.250	0.354		1.375	0.530		3.833	0.577
Overall mean for Influence Category		2.853	1.006						

[1] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

[2] The scale used for these items was: 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

Table 55

INTERUNIT INFLUENCE SCORES
FACULTY

Item	n	$\bar{x}$	sd
How much say or influence does the Co-op program have on the way you perform your role or on the content you teach?[1]	30	2.267	0.907
During the past year, to what extent has the Co-op changed or influenced the services or operations of your department?[2]	21	2.190	1.078
How much say or influence do you have on the internal operation of the Co-op program?[1]	29	1.966	1.210
During the past year, to what extent has your department changed or influenced the services or operations of the Co-op program?[2]	18	1.833	0.857
Overall mean for Faculty		2.112	0.773
Overall mean for Influence Category		2.853	1.006

[1] The scale used for these items was: 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 56

INTERUNIT INFLUENCE DISTRIBUTION SCORES
FOR FOCAL UNIT AND OTHER UNITS

Influence Items	Program Administrators $\bar{x}$	Faculty $\bar{x}$
How much say or influence does[1] this other unit have on the internal operations of your unit?	1.500	2.267
During the past six months, to what extent has this other unit changed or influenced the services or operations of your unit?	1.000	2.190
How much say or influence does your unit have on the internal operations of this other unit?	1.500	1.966
During the past six months, to what[2] extent has your unit changed or influenced the services or operations of this other unit?	1.500	1.833
Overall unit mean	1.375	2.112
Index of Influence = -0.737		

[1] The scale used for these items was: 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 57

INTERUNIT INFLUENCE SCORES
EMPLOYERS

Item	n	$\bar{x}$	sd
How much say or influence does the Co-op[1] have on the internal operations of your company?	8	2.250	1.035
During the past year, to what extent has[2] the Co-op changed or influenced the services or operations of your company?	8	2.000	0.756
How much say or influence does your[1] company have on the internal operations of the Co-op?	8	2.375	1.188
During the past year, to what extent has[2] your company changed or influenced the services or operations of the Co-op program?	8	1.750	0.707
Overall mean for Employers		2.094	0.855
Overall mean for Influence Category		2.853	1.006

[1] The scale used for these items was: 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

or operations of the program to considerable extent ($\bar{x}$ = 4.333) (Table 54). The index of influence for employers and program administrators is +1.739 indicating that the Co-op program is more influenced by the employers than the employers are influenced by the program (Table 58).

Significant positive correlations (Table 60) existed for faculty between influence and four linkage dimensions as well as effectiveness. The correlations are: resource dependence, r = 0.3278, p = 0.038; awareness, r = 0.4285, p = 0.007; amount, direction, and time in communications, r = 0.4249, p = 0.031; formalization, r = 0.6626, p = 0.000; and effectiveness, r = 0.4548, p = 0.008. There were also several significant positive correlations for employers and amount of influence. These were resource dependence, r = 0.9513, p = 0.000; amount, direction, and time in communication, r = 0.7197, p = 0.022; formalization, r = 0.7831, p = 0.011; and effectiveness, r = 0.7167, p = 0.023. A significant negative correlation existed for employers between influence and consensus/conflict, r = -0.7030, p = 0.026 (Table 60).

Summary

The summary of findings for interunit influence is presented in Table 59. Overall, the level of influence is in the low to moderate range. Chairmen and program administrators reported similar moderate levels of influence, whereas program administrators reported greater influence than employers. These are at the upper and lower extremes of the moderate range. Program administrators also registered a higher level of influence than the faculty, although both are in the lower range. These findings were based on items regarding the immediate past six month-twelve month period. Information regarding the extent of influence

Table 58

INTERUNIT INFLUENCE DISTRIBUTION SCORES
FOR FOCAL UNIT AND OTHER UNITS
EMPLOYERS

Influence Items	Program Administrators $\bar{x}$	Employers $\bar{x}$
How much say or influence does this[1] other unit have on the internal operations of your unit?	4.333	2.250
During the past six months, to what extent has this other unit changed or influenced the services or operations of your unit?	4.333	2.000
How much say or influence does your unit have on the internal operations of this other unit?	3.333	2.375
During the past six months, to what[2] extent has your unit changed or influenced the services or operations of this other unit?	3.333	1.750
Overall unit mean	3.833	2.094
Index of Influence = +1.739		

[1] The scale used for these items was: 1 = none; 2 = little; 3 = some; 4 = quite a bit; 5 = very much.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 59

INTERUNIT INFLUENCE
SUMMARY OF FINDINGS

	Range				
	Low		Moderate		High
	1	2	3	4	5
Chairmen			XO (3.222) (3.250)		
Faculty	O (1.375)	X (2.112)			
Employers		X (2.094)		O (3.833)	

The level of perceived influence of program administrators on the other stakeholder groups in indicated by the "O".

The level of perceived influence of the stakeholder groups on the program administrators is indicated by the "X".

Table 60

PEARSON CORRELATION COEFFICIENTS BETWEEN
AMOUNT OF INFLUENCE, THE LINKAGE DIMENSIONS, AND EFFECTIVENESS

	Resource Dependence	Awareness	Consensus/ Conflict	Amount, Direction and Time in Communications	Ease of Communication	Formalization	Effectiveness
Faculty	r = 0.3278 n = 30 p = 0.038	r = 0.4285 n = 32 p = 0.007	r = -.2180 n = 11 p = 0.260	r = 0.4249 n = 20 p = 0.031	r = 0.4602 n = 10 p = 0.090	r = 0.6626 n = 30 p = 0.000	r = 0.4548 n = 28 p = 0.008
Employers	r = 0.9513 n = 8 p = 0.000	r = 0.5347 n = 8 p = 0.086	r = -.7030 n = 8 p = 0.026	r = 0.7197 n = 8 p = 0.022	r = 0.1053 n = 8 p = 0.402	r = 0.7831 n = 8 p = 0.011	r = 0.7167 n = 8 p = 0.023

may serve as useful guidelines in future administrative decision-making for the program. It is possible that the amount of influence an organization has over another organization will affect the behavior of both organizations in terms of their level of commitment and of their behavior to each other and within the network.

Summary of Chapter

In this chapter several aspects of the structural dimensions of the network were measured. Four were measured with a detailed questionnaire. The first of these dimensions was the amount, direction, and time spent in communication. All four stakeholder groups (chairmen, faculty, employers, and students) spent a relatively small amount of time in communication regarding the Co-op program. Program administrators initiated more of the communication between chairmen, employers, and students than they did between themselves and the faculty. All groups experienced considerable ease of communication and program administrators reported less ease than the other groups. This may be due to the roles played by each group. For example, the role of the program administrator is to serve as coordinator, liaison, and mediator of the program. This requires that administrators be readily accessible. In the program studied, the administrators have an office to facilitate the organization and communication of the program.

At the time of the study the extent of formalization in the program was low to moderate. The level of formalization may increase with time as the network expands. The logistics of a large network necessitate formalization.

The amount of influence the stakeholder groups have on the Co-op program is also in the low to moderate range for chairmen, faculty and employers.

The "mediated" nature of the structure is verified by the findings for the structural dimensions in that for all four dimensions there is evidence of the program administrators accommodating the stakeholders in some way. They have facilitated and initiated communication and they have implemented formalization to the extent that it exists. There is a significant correlation between formalization and influence. The program administrators' role as the mediators is reflected in the influence measure in which they believe they have more influence on the chairmen and on the employers than vice versa. They believe, however, that they have little influence on the faculty while the faculty believe they have somewhat more influence on the Co-op program.

Pearson Correlation Coefficients were calculated between each of the linkage variables to determine where relationships existed. These are presented in Table 61. A simplified table showing the significant correlation is presented in Table 62.

Table 61

PEARSON CORRELATION COEFFICIENTS BETWEEN
LINKAGE DIMENSIONS

	Resource Dependence	Awareness of Other Unit	Awareness--Personal Acquaintance	Consensus/ Conflict	Amount, Direction and Time in Communication	Ease of Communication	Formalization	Influence
Resource Dependence		0.6703* p = 0.050	0.4511 p = 0.223	-0.4572 p = 0.151	0.9037* p = 0.003	0.2097 p = 0.326	0.7806 p = 0.019	0.9000 p = 0.003
Awareness of Other Unit	0.6703 p = 0.050		0.5803 p = 0.114	-0.5106 p = 0.121	0.5410 p = 0.083	-0.4159 p = 0.177	0.9522 p = 0.000	0.8473* p = 0.008
Awareness--Personal Acquaintance	0.4511 p = 0.223	0.5803 p = 0.114		-0.2237 p = 0.359	0.2330 p = 0.328	-0.1686 p = 0.393	0.3743 p = 0.232	0.4225 p = 0.239
Consensus/ Conflict	-0.4572 p = 0.151	-0.5106 p = 0.121	-0.2237 p = 0.359		-0.7040 p = 0.039	0.3598 p = 0.214	-0.5980 p = 0.078	-0.711 p - 0.037
Amount, Direction and Time in Communication	0.9037 p = 0.003	0.5410 p = 0.083	0.2330 p = 0.328	-0.7040 p = 0.039		0.0250 p = 0.479	-0.5519 p = 0.078	0.9521 p = 0.000
Ease of Communication	0.2097 p = 0.326	-0.4159 p = 0.177	-0.1686 p = 0.393	0.3598 p = 0.214	0.0250 p = 0.479		-0.3451 p = 0.224	-0.1586 p = 0.367
Formalization	0.7806 p = 0.019	0.9522 p = 0.000	0.3743 p = 0.232	-0.5980 p = 0.078	0.5519 p = 0.078	-0.3451 p = 0.224		0.9363 p = 0.001
Influence	0.9000 p = 0.003	0.8473 p = 0.008	0.8251 p = 0.022	-0.6339 p = 0.063	0.5609 p = 0.074	-0.3739 p = 0.204	0.8715 p = 0.002	

Table 62

SIGNIFICANT CORRELATIONS BETWEEN
LINKAGE DIMENSIONS

	Resource Dependence	Awareness of Other Unit	Awareness--Personal Acquaintance	Consensus/ Conflict	Amount, Direction and Time in Communication	Ease of Communication	Formalization	Influence
Resource Dependence		+			+		+	+
Awareness of Other Unit	+						+	+
Awareness--Personal Acquaintance								
Consensus/ Conflict					-			-
Amount, Direction and Time in Communication	+			-				+
Ease of Communication								
Formalization	+	+						+
Influence	+	+	+				+	

Chapter VII

PROGRAM EFFECTIVENESS, LINKAGES, AND PERCEIVED OBJECTIVES

The purposes of this chapter are three-fold: First, to determine the effectiveness of the program; second, to explore the possible association between linkages and program effectiveness; and third, to explore the relationship between stakeholder objectives and perceived program effectiveness.

Perceived Effectiveness of Interunit Relationship

Perceived effectiveness is a subjective measure. Van de Ven (1980:417) defined perceived effectiveness as the extent to which the parties involved (1) believe that each unit carried out its commitments, and (2) feel their relationship is equitable, worthwhile, productive, and satisfying. Van de Ven justified this approach in his agrument that, according to theory, boundary spanners act or behave on the basis of their attitudes or perceptions of a relationship rather than some external objective criterion of effectiveness which is generally not known to boundary spanners in practice (op. cit., 417).

The effectiveness index in this study is the mean response to six items. Responses were elicited from program administrators, chairmen, faculty, and employers. Students responded to several effectiveness items. However, since theirs differed considerably from the Van de Ven items, they will be reported separately. The reason for this departure lies in the unique position of the students who are both the clients and the participants. A review of the effectiveness items (Table 63) will

reveal the appropriateness of the items for the boundary spanners of an organization, not for individual clients.

Department Chairmen

Department chairmen (Table 63) felt that the program is strong in terms of effectiveness ($\bar{x}$ = 4.500). Although they indicated a weakness in the equality of the program in terms of pay-offs to them ($\bar{x}$ = 2.000), the two respondents were in total agreement ($\bar{x}$ = 5.000) that the time and effort spent in developing and maintaining the relationship were worthwhile. They were equally positive about the extent to which the Co-op carried out its responsibilities and commitments to them and vice versa. They also indicated that to a greater extent ($\bar{x}$ = 5.000), they are satisfied with the relationship between their department and the Co-op program. These findings must be considered with caution since only two of the possible five department chairmen responded. One of the three remaining chairmen responded to those items to which he was able. However, his department has yet to become actively involved in the Co-op program. This is also true of the chairmen who did not respond. In spite of a paucity of information from all chairmen at this early stage of the study, these findings may be of value over a period of time after the instrument has been administered to the department chairmen over a period of years, and all departments are participating in the program.

The program administrators (Table 67) perceived their relationship with department chairmen to be in the medium range of effectiveness ($\bar{x}$ = 3.086). They were satisfied with the relationship to some extent ($\bar{x}$ = 3.000) and felt that they had carried out their responsibilities to the chairmen to a slightly greater extent ($\bar{x}$ = 3.500) than the chairmen had to them ($\bar{x}$ = 3.000). They felt that the relationship is productive

to some extent ($\bar{x}$ = 3.500) and that the time and effort spent in developing and maintaining the relationship was worthwhile to a considerable extent ($\bar{x}$ = 4.500).

Faculty

Faculty members (Table 64) felt that the Co-op program was weak in terms of effectiveness ($\bar{x}$ = 2.460). More faculty members commented on this item than they did on the other effectiveness items. Thirty respondents ($\bar{x}$ = 1.826) felt that they get much less than they ought in terms of pay-offs from the program. Notably fewer faculty chose to respond to the remaining items (n = 14 - 19). Overall, faculty members believe their department has carried out its responsibilities to some extent ($\bar{x}$ = 3.263) while they believe the Co-op has carried out its responsibilities to little extent ($\bar{x}$ = 2.571). They felt that the relationship between themselves and the Co-op porgram was productive to little extent ($\bar{x}$ = 2.750). However, they believe that the time and effort spent in developing and maintaining the relationship was worthwhile to some extent ($\bar{x}$ = 3.333). Seventeen of the respondents were satisfied with the relationship to some extent ($\bar{x}$ = 3.000).

The program administrators (Table 67) perceived their effectiveness in terms of their relationship with the faculty to be weak ($\bar{x}$ = 1.875). One administrator indicated that the faculty has carried out its responsibilities and commitments to the Co-op program to little extent ($\bar{x}$ = 2.000) over the past year and that the program administrators have carried out their commitments and responsibilities to the faculty to no extent ($\bar{x}$ = 1.000). Two administrators felt that the relationship was productive to almost no extent ($\bar{x}$ = 1.500) but that the time and effort spent in developing and maintaining the relationship was worthwhile to a

considerable extent ($\bar{x}$ = 4.000). The program administrators were not satisfied with the relationship between themselves and the faculty during the past year ($\bar{x}$ = 1.000).

Employers

Employers (Table 65) believed their relationship with the Co-op program to be effective to some extent ($\bar{x}$ = 3.485). They felt that the equality of the give-and-take of the relationship was balanced ($\bar{x}$ = 3.143) and indicated that the Co-op program has carried out its commitments and responsibilities to them to a slightly greater extent ($\bar{x}$ = 3.625) than they have to the Co-op program ($\bar{x}$ = 3.500). They viewed the relationship between the Co-op program and their company to be productive to some extent ($\bar{x}$ = 3.429), and, similarly, that the time and effort spent in developing and maintaining the relationship with the Co-op program was worthwhile to some extent ($\bar{x}$ = 3.500). Overall, employers are fairly satisfied with the relationship between themselves and the Co-op program ($\bar{x}$ = 3.625). Program administrators (Table 67) reported a fairly strong relationship with the employers ($\bar{x}$ = 3.994) and indicated their working relationship with employers over the past six months to be effective to a high extent ($\bar{x}$ = 4.667). They felt that they have carried out their responsibilities and commitments to the employers to a considerable extent ($\bar{x}$ = 4.333) and that the employers have reciprocated to an even greater extent ($\bar{x}$ = 4.667). The administrators felt that the relationship was productive to a considerable extent ($\bar{x}$ = 4.000) and that the time and effort spent in developing and maintaining the relationship was worthwhile to a great extent ($\bar{x}$ = 5.000). Overall, program administrators were satisfied with their relationship with the employers to some extent ($\bar{x}$ = 3.667).

Students

Student perceptions of effectiveness were determined by a factor analysis of the items in the student questionnaire which included one specific item in the student questionnaire: "In general, how would you rate the overall effectiveness of the Co-op program?" (Table 66)

The factor analysis, when pursued to two factors, yielded nine items (Table 66), seven of which were related to the appropriateness of the on-site job experience for the students' own professional development. This could be interpreted as a measure of effectiveness since the students identified as the two most important objectives for the program, those related to provision of career exploration and of technical skills and experience. As well, it is in keeping with the Van de Ven definition of effectiveness. All student effectiveness items were in the medium range with the exception of one. Students reported that their job assignment was planned out in advance of their arrival to little extent ($\bar{x} = 2.533$).

A direct comparison of program administrator effectiveness responses concerning students may be inappropriate since different items were used for the students. While the student items focused on effectiveness, they also involved the employers. The employers are an important variable in the students' perception of program effectiveness since the final test of effectiveness for the students is the actual work experience.

A summary of correlations between effectiveness and the linkage dimensions for the four groups is presented in Table 68.

Table 63

PERCEIVED EFFECTIVENESS OF INTERUNIT RELATIONSHIP SCORES
DEPARTMENT CHAIRMEN

Item	n	$\bar{x}$	sd
Consider now the equality of the give-and-take[1] relationship with the Co-op program. How fair do you feel are the "pay-offs" to your department from this program?	2	2.000	1.414
To what extent has the Co-op carried out its[2] responsibilities and commitments in regard to your department during the past year?	2	5.000	0.0
To what extent has your department carried out your responsibilities and commitments in regard to the Co-op during the past year?	2	5.000	0.0
To what extent do you feel the relationship between your department and the Co-op is productive?	2	5.000	0.0
To what extent is the time and effort spent in developing and maintaining the relationship with the Co-op program worthwhile?	2	5.000	0.0
Overall, to what extent are your satisfied with the relationship between your department and the Co-op program during the year?	2	5.000	0.0
Overall mean for Department Chairmen		4.500	0.167
Overall mean for Effectiveness Category		3.355	0.924

[1] The scale used for this item was: 0 = don't know; 1 = we get much less than we ought; 2 = we get somewhat less than we ought; 3 = balanced; 4 = we get somewhat more than we ought; 5 = we get much more than we ought.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 64

PERCEIVED EFFECTIVENESS OF INTERUNIT RELATIONSHIP SCORES
FACULTY

Item	n	$\bar{x}$	sd
Consider now the equality of the give-and-take relationship with the Co-op program. How fair do you feel are the "pay-offs" to your department from this program?[1]	30	1.826	1.029
To what extent has the Co-op carried out its responsibilities and commitments in regard to your department during the past year?[2]	14	2.571	1.342
To what extent has your department carried out your responsibilities and commitments in regard to the Co-op program during the past year?	19	3.263	1.368
To what extent do you feel the relationship between your department and the Co-op program is productive?	16	2.750	1.238
To what extent is the time and effort spent in developing and maintaining the relationship with the Co-op program worthwhile?	18	3.333	1.029
Overall, to what extent are you satisfied with the relationship between your department and the Co-op program during the year?	17	3.000	1.275
Overall mean for Faculty		2.460	1.105
Overall mean for Effectiveness Category		3.355	0.924

[1] The scale used for this item was: 0 = don't know; 1 = we get much less than we ought; 2 = we get somewhat less than we ought; 3 = balanced; 4 = we get somewhat more than we ought; 5 = we get much more than we ought.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 65

PERCEIVED EFFECTIVENESS OF INTERUNIT RELATIONSHIP SCORES
EMPLOYERS

Item	n	$\bar{x}$	sd
Consider now the equality of the give-and-take relationship with the Co-op program. How fair do you feel are the "pay-offs" to your company from this program?[1]	7	3.143	0.378
To what extent has the Co-op program carried out its responsibilities and commitments in regard to your company during the past year?[2]	8	3.625	0.518
To what extent has your company carried out your responsibilities and commitments in regard to the Co-op program during the past year?	8	3.500	0.535
To what extent do you feel the relationship between your company and the Co-op program is productive?	7	3.429	0.787
To what extent is the time and effort spent in developing and maintaining the relationship with the Co-op program worthwhile?	8	3.500	0.535
Overall, to what extent are you satisfied with the relationship between your company and the Co-op program during the year?	8	3.625	0.744
Overall mean for Employers		3.458	
Overall mean for Perceived Effectiveness Category		3.355	0.924

[1] The scale used for this item was: 1 = we get much less than we ought; 2 = we get somewhat less than we ought; 3 = balanced; 4 = we get somewhat more than we ought; 5 = we get much more than we ought.

[2] The scale used for these items was: 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 66

PERCEIVED EFFECTIVENESS OF ON-SITE JOB PLACEMENT
BY STUDENTS

Item	n	$\bar{x}$	sd
To what extent was your job assignment[1] planned out in advance of your arrival?	30	2.533	1.279
To what extent is (or was) your job placement related to your area of engineering?	31	3.387	1.308
To what extent do (or did) you get to do a number of different activities on the job?	29	3.724	1.009
To what extent is the Co-op program helping you to meet your career preparation objectives?	33	3.485	1.004
To what extent was your most recent job placement (or the one you are in now) scaled to your level of professional competence?	31	3.323	1.326
To what extent is (or was) your job technically challenging? That is, to what extent does it push you beyond your current state of knowledge and experience?	29	3.276	1.306
To what extent is (or was) your job of real importance to your employer?	30	3.667	0.994
To what extent is the Co-op program meeting your expectations?	43	3.535	0.960
In general, how would you rate the overall[2] effectiveness of the Co-op program?	45	3.854	0.937
Overall mean for Students		3.414	0.826
Overall mean for Effectiveness Category		3.355	0.924

[1] The scale used for these items was: 0 = too early to tell; 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

[2] The scale used for this item was: 1 = very poor; 2 = poor; 3 = fair; 4 = good; 5 = excellent.

Table 67

PERCEIVED EFFECTIVENESS OF INTERUNIT RELATIONSHIP SCORES
FREQUENCY SCALE
PROGRAM ADMINISTRATORS

Item	Chairmen			Faculty			Employers			Students		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
Prior to the past six months, to what extent has your unit had effective working relationships with this other unit?	2	3.000	1.414	3	1.667	1.155	3	4.667	0.577	3	4.667	0.577
To what extent has this unit carried out its responsibilities and commitments in regard to your unit during the past year?	2	3.000	0.0	1	2.000	--	3	4.333	0.577	3	4.667	0.577
To what extent has your unit carried out its responsibilities and commitments in regard to this other unit during the past year?	2	3.500	0.707	1	1.000	--	3	4.667	0.557	3	5.000	0.0
To what extent do you feel this relationship between your unit and this other unit is productive?	2	3.500	0.707	2	1.500	0.707	3	4.000	1.000	3	4.000	1.000
To what extent is the time and effort spent in developing and maintaining the relationship with this other unit worthwhile?	2	4.500	0.707	2	4.000	0.0	3	5.000	0.0	3	5.000	0.0
Overall, to what extent were you satisfied with the relationship between your unit and this other unit during the past year?	2	3.000	0.0	2	1.000	0.0	3	3.667	0.577	3	4.000	1.000
Overall mean for Program Administrators		$\bar{x}$ = 3.086			$\bar{x}$ = 1.875			$\bar{x}$ = 3.944			$\bar{x}$ = 4.667	
Overall mean for Effectiveness					$\bar{x}$ = 3.420			sd = 0.906				

The scale used for these items was: 0 = no prior contact; 1 = to no extent; 2 = little extent; 3 = some extent; 4 = considerable extent; 5 = great extent.

Table 68

PERCEIVED EFFECTIVENESS OF INTERUNIT RELATIONSHIPS
SUMMARY OF FINDINGS

	Range				
	Low		Moderate		High
	1	2	3	4	5
Chairmen			O(3.086)		X(4.500)
Faculty		O(1.875)	X(2.460)		
Employers				X(3.458) O(3.944)	
Students				X(3.414)	O(4.667)

The perceived effectiveness by program administrators is indicated by the "O".

The perceived effectiveness by the stakeholder groups is indicated by "X".

Discussion of Findings

The Co-op program is believed to be most effective by the two chairmen who responded to the questionnaire. This may be a function of their level of commitment to the program and of their involvement in the planning for and the development of the program. The study was conducted during the first year of operation of the program and there was a considerable amount of development observed during that time. The chairmen were involved in this development.

The program administrators believed that their effectiveness with the department chairmen and of the chairmen with them was only moderate. This discrepancy with the perceptions of the responding chairmen may be explained by the fact that the administrators were responding to effectiveness questions regarding all five chairmen. Another factor is one of timing. The program administrators and the chairmen had only just begun meeting formally as the Co-op Liaison Committee prior to the administering of the questionnaire.

Employers and students recorded similar mid-range perceptions of effectiveness. Both groups are voluntary members of the program, however the length and nature of their commitment differs. Employers hire students if and when they need them, therefore, their commitment need only be for four or eight months. The length of the student commitment is for four years. They join the program in their second year of study and remain in it for four years. The Co-op program requires five years for graduation instead of the usual four years. The fact that the student is committed to the program may affect his perception of program effectiveness in that it is in his interest for it to be successful. Students who did

not perceive it to be effective may have left the program and therefore were not among the respondents.

The program was believed to be least effective by faculty. Program administrators held a similar view of effectiveness regarding themselves and the faculty, vis a vis the program. The effectiveness measure is a subjective one, it is also a reflection of a desire for improvement. The desire for improvement may be related to commitment. In spite of the fact that both groups perceived less effectiveness than they desired, they both expressed a belief in the value of the program. The level of effectiveness may be related to the interorganizational linkage dimensions. This will be explored in the next section of this chapter.

Summary

The measure of effectiveness is subjective. It is both a statement of what is perceived to be the level of effectiveness at that time and it is, in part, an indicator of perceived progress to a desired state. Information regarding effectiveness should be considered as formative rather than summative. An overall high rating would be inappropriate for a program in its first year of operation.

LINKAGE VARIABLES AND PROGRAM EFFECTIVENESS

For groups having large enough numbers, Pearson Correlation Coefficients were calculated to determine whether correlations existed between perceived program effectiveness and the linkage variables. These calculations were conducted for faculty, employers, and students. The findings are presented in Table 69.

Faculty

There were significant positive correlations for faculty between perceived effectiveness and four linkage dimensions. These were: resource dependence, $r = 0.3883$, $p = 0.021$; awareness, $r = 0.5115$, $p = 0.002$; formalization, $r = 0.5486$, $p = 0.002$; and influence, $r = 0.4548$, $p = 0.008$.

Discussion of Findings

Detailed discussions of each of the linkage variables are presented in Chapters V and VI. The correlation between resource dependence and effectiveness for faculty is low. Possible explanations are that at the time of the study, the level of awareness for faculty was low both in terms of level of personal acquaintance (Table 28) and in terms of awareness of the program (Table 26). As noted above, the level of awareness for faculty was significantly related to their perceptions of program effectiveness. The level of influence is also related to perceived effectiveness. The greater the amount of influence, the greater the perceived effectiveness.

The finding that the extent of formalization is significantly related to effectiveness may have to do with the size of the group involved. There are 98 members in the teaching faculty. Informal

communication would be ineffective because there is less chance that each member would receive the information. Increased formalization appears to be a desirable goal in this situation.

Employers

Two linkage dimensions correlated significantly with effectiveness for the employers. They were resource dependence, $r = 0.6381$, $p = 0.044$, and influence, $r = 0.7167$, $p = 0.023$.

Discussion of Findings

Although the resource dependence linkage for employers involved in the Co-op program tended to be weak (Table 22), the Pearson correlation ($r = 0.6381$, $p = 0.044$) would seem to indicate a perception by the employers that the Co-op program is effective in relation to what they are getting out of it. The employers expressed very little dependence (Table 22) on the Co-op program to accomplish their goals. As well, they rated the overall importance of the Co-op program in attaining the goals of their compnay in the "very little" range. The significant and fairly high correlation for employers between effectiveness and influence ($r = 0.7167$, $p = 0.023$) may be a reflection of the importance of influence in the program. Interunit influence is a measure of two aspects of influence. One is the measure of influence of the Co-op program on the employers and the other is the measure of influence of the employers on the Co-op program.

Program administrators indicated influence to some extent (Table 54), on the internal operations of the employers organization and felt that the employers had influence to a considerable extent on the internal operations of the Co-op program (Table 54). Employers

perceived influence of the Co-op on the internal operations of their company to a lesser extent (Table 57). Similarly they believed that they influenced the Co-op program to little extent.

Students

Correlations were calculated for students between effectiveness and three linkage dimensions (Table 69). Positive significant correlations exist between effectiveness and awareness, $r = 0.3080$, $p = 0.022$, and between effectiveness and influence, $r = 0.7167$, $p = 0.023$.

Discussion of Findings

It appears that the extent to which the students are members of the Co-op program and are aware of the goals and services of the program, and the extent to which formalization exists may be related to their perceptions of program effectiveness. However, the low correlations indicate that the finding is weak and possibly the relationships do not exist.

Summary

There are relationships between effectiveness and some linkage dimensions and not others for each of the three groups for whom these correlations were calculated. The extent of awareness and of influence stand out as being the most significant variables in the program effectiveness as perceived by faculty, employers, and students. This would seem to indicate the importance of the role of the program administrators. They are, in this "mediated" structure, the group most responsible for making other stakeholder groups aware of the program and for influencing them to participate.

Table 69

PEARSON CORRELATION COEFFICIENTS BETWEEN
EFFECTIVENESS AND THE LINKAGE DIMENSIONS

	Dependence	Awareness	Consensus/ Conflict	Amount, Direction and Time in Communication	Ease of Communication	Formalization	Effectiveness
	r = 0.3883	r = 0.5115	r = -0.1116	r = 0.3304	r = 0.0066	r = 0.5486	r = 0.4548
Faculty	n = 28	n = 29	n = 10	n = 20	n = 10	n = 27	n = 28
	p = 0.021	p = 0.002	p = 0.379	p = 0.077	p = 0.493	p = 0.002	p = 0.008
	r = 0.6381	r = 0.3977	r = -0.4057	r = 0.2822	r = 0.3772	r = 0.4226	r = 0.7167
Employers	n = 8	n = 8	n = 8	n = 8	n = 8	n = 8	n = 8
	p = 0.044	p = 0.165	p = 0.159	p = 0.249	p = 0.178	p = 0.148	p = 0.023
		r = 0.3080		r = -0.1474		r = 0.2914	
Students		n =		n =		n =	
		p = 0.022		p = 0.179		p = 0.031	

P < .05

PROGRAM OBJECTIVES

Objectives are manifestations of the ideology of an organization. Benson (19:237) observes that the organization's ideology is "essentially a way of talking about and rationalizing its technology" and that "the ideology asserts a connection between assigned tasks and chosen procedures."

The objectives held by the stakeholder groups may be related to the extent to which they perceive the program to be effective. The program will be effective for each group to the extent that their objectives for the program are being met. The objectives they hold for their own organization will also influence the extent of their involvement with the program.

In this study the question of whether, and to what extent program objectives were related to perceived program effectiveness involved several processes. First, a list of objectives was developed as follows: Sixteen objectives for Cooperative Education programs were identified from the literature review. As a further test for validity these were perused by the Dean of Engineering and by the three program administrators. Subsequently the list was refined to ten objectives.

Second, respondents for each group were presented with a list of the ten program objectives from which they were asked to select the three most important to them and, further, to rank the three in order of importance. The ten objectives were:

1. To provide a potential source of trained manpower to industry.
2. To provide students with technical skills and experience through specific career-relation Co-op assignments.

3. To enhance opportunities for mutual understanding and cooperation between industry and the faculty.
4. To provide opportunities for companies to assess students and vice versa.
5. To provide opportunities for career exploration by students.
6. To enhance university courses via input from industry.
7. To equip students with the skills necessary for securing employment.
8. To give students an introduction to the work world and some practical "human-relations" training.
9. To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.
10. To provide additional opportunities for minority and women students through using Co-op assignments to break down traditional barriers.

The objectives were not numbered in the original questionnaire to reduce a bias of implied ordering possibly indicated by numbers. They were numbered for statistical analysis during the coding on computer data cards.

Third, in order to determine the priority of objectives for each group, the frequencies for the objectives were weighted by the following factors. The most important objective was multiplied by three, the second most important objective was multiplied by two and the third most important by one. The resulting ranking is presented in Table 70. A perusal of this

table indicates a tendency for each of the five stakeholder groups to hold as the first two most important objectives to them, those among the first five listed.

Fourth, to determine to what extent each of the stakeholder groups held the same objectives to be important to them, Spearman Correlation Coefficients were calculated. These are presented in Table 71. As indicated in Table 71, the faculty and department chairmen ($\bar{x}$ = 0.787), and the faculty and the employers ($\bar{x}$ = 0.604) held some of the same three objectives as being important for them in the Cooperative Education program. There was also a significant correlation for objectives held by the chairmen and students ($\bar{x}$ = 0.540), and by the chairmen and administrators ($\bar{x}$ = 0.544). As well, a highly significant correlation ($\bar{x}$ = 0.804, p = 0.003) existed between students and program administrators.

The final process was the calculation of Pearson Correlation Coefficients between the priority of objectives held and the effectiveness of the program as perceived by stakeholder groups (Table 72). These Pearson Correlations were calculated for the faculty, employers, and the students. There were few correlations between the three groups' perceptions of program effectiveness and the objectives for the program which were of importance to them. There were positive correlations between the employers and the students perception's of effectiveness and the first objective (r = 0.7001, r = 0.2671, respectively). There were negative correlations between the faculty's perception of effectiveness and objective number five (r = 0.3845) and between the students perception of effectiveness and the tenth objective (r = 0.2671).

Table 70

STAKEHOLDER RANK ORDERING OF OBJECTIVES

Objectives	Faculty $\bar{x}$	Faculty Rank	Chairmen $\bar{x}$	Chairmen Rank	Students $\bar{x}$	Students Rank	Employers $\bar{x}$	Employers Rank	Administrators $\bar{x}$	Administrators Rank
1. To provide a potential source of trained manpower to industry.	0.765	3.5	0.000	8	0.067	7.5	1.500	1.5	0.667	4.5
2. To provide students with technical skills and experience through specific career-related Co-op assignments.	0.853	2	2.000	1	1.711	2	1.500	1.5	1.000	2.5
3. To enhance opportunities for mutual understanding and cooperation between industry and the faculty.	0.971	1	0.667	2.5	0.067	7.5	0.375	6.5	0.000	8.5
4. To provide opportunities for companies to assess students and vice versa.	0.324	8	0.000	8	0.044	9.5	0.875	3	0.000	8.5
5. To provide opportunities for career exploration by students.	0.500	6	0.333	4.5	1.889	1	0.500	5	2.333	1
6. To enhance university courses via input from industry.	0.588	5	0.333	4.5	0.333	6	0.375	6.5	0.667	4.5
7. To equip students with the skills necessary for securing employment.	0.088	9	0.000	8	0.644	4	0.000	9.5	0.333	6
8. To give students an introduction to the work world and some practical "human-relations" training.	0.765	3.5	0.667	2.5	0.800	3	0.750	4	1.000	2.5
9. To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.	0.353	7	0.000	8	0.378	5	0.125	8	0.000	8.5
10. To provide additional opportunities for minority and women students through using Co-op assignments to break down traditional barriers.	0.059	10	0.000	8	0.044	9.5	0.000	9.5	0.000	8.5

Table 71

EXTENT TO WHICH STAKEHOLDER GROUPS HOLD THE SAME THREE MOST IMPORTANT OBJECTIVES

Group	with Group	Mean	Significance
Faculty	Chairmen	0.7869	0.003*
	Students	0.2905	0.208
	Employers	0.6043	0.032*
	Administrators	0.3851	0.136
Chairmen	Faculty	0.7869	0.003*
	Students	0.5404	0.053*
	Employers	0.3811	0.139
	Administrators	0.5442	0.052*
Students	Faculty	0.2905	0.208
	Chairmen	0.5404	0.053*
	Employers	0.1631	0.326
	Administrators	0.8042	0.003*
Administrators	Faculty	0.3851	0.136
	Chairmen	0.5442	0.052*
	Students	0.8042	0.003*
	Employers	0.4923	0.074
Employers	Faculty	0.6043	0.032*
	Chairmen	0.3811	0.139
	Students	0.1631	0.326
	Administrators	0.4923	0.074

* $p1<.05$ in round figures.

Table 72

PEARSON CORRELATION COEFFICIENTS BETWEEN IMPORTANCE OF OBJECTIVES AND EFFECTIVENESS OF PROGRAM AS PERCEIVED BY STAKEHOLDER GROUPS

Objectives	Effectiveness		
	Faculty N = 29	Employers N = 8	Students N = 43
1. To provide a potential source of trained manpower to industry.	0.1291 p = 0.252	0.7001* p = 0.027	0.2671* p = 0.042
2. To provide students with technical skills and experience through specific career-related Co-op assignments.	0.1270 p = 0.256	-0.1252 p = 0.384	-0.2090 p = 0.089
3. To enhance opportunities for mutual understanding and cooperation between industry and the faculty.	-0.1675 p = 0.193	0.3977 p = 0.165	0.0552 p = 0.362
4. To provide opportunities for companies to assess students and vice versa.	-0.0608 p = 0.377	-0.3153 p = 0.223	0.0684 p = 0.332
5. To provide opportunities for career exploration by students.	-0.3845* p = 0.020	-0.2425 p = 0.281	0.1889 p = 0.113
6. To enhance university courses via input from industry.	-0.0100 p = 0.479	0.3772 p = 0.178	-0.1528 p = 0.164
7. To equip students with the skills necessary for securing employment.	0.0941 p = 0.314	-- --	0.0996 p = 0.263
8. To give students an introduction to the work world and some practical "human-relations" training.	-0.088 p = 0.323	-0.5461 p = 0.081	0.1072 p = 0.247
9. To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.	0.2114 p = 0.135	-0.5822 p = 0.065	0.0966 p = 0.269
10. To provide additional opportunities for minority and women students through using Co-op assignments to break down traditional barriers.	0.0244 p = 0.450	-- --	-0.2671* p = 0.042

* $P < .05$

Linkage Dimensions and Program Effectiveness

Pearson Correlation Coefficients were calculated between effectiveness and the linkage dimensions to determine which dimensions were related to program effectiveness (Table 73). The most significant and highly correlated relationship existed between effectiveness and awareness. This was followed in order by formalization, influence, and resource dependence.

Summary of Chapter

Program effectiveness and its relationship to linkages and program objectives was the topic of this chapter. First, effectiveness as perceived by each stakeholder group was determined. This yielded a mean of effectiveness for each group which was used to explore possible relationships between effectiveness and the linkage dimensions. The mean for effectiveness for each group was also used to determine whether relationships existed between stakeholder objectives for the program and effectiveness.

The Co-op program was judged to be effective in a moderate to high range at the time of the study, by the chairmen, employers, the students, and program administrators. It was judged to be less effective by faculty. Program administrators agreed that in terms of their interaction with the faculty, the program was less effective than they desired.

The findings regarding the relationship between stakeholder objectives and perceived effectiveness were that there are few relationships between them. Possible reasons for this finding are discussed in Chapter VIII.

Table 73

PEARSON CORRELATION COEFFICIENTS BETWEEN
EFFECTIVENESS AND LINKAGE DIMENSIONS

	Resource Dependence	Awareness of Other Unit	Awareness--Personal Acquaintance	Consensus/ Conflict	Amount, Direction and Time in Communication	Ease of Communication	Formalization	Influence
Effectiveness	0.6578* p = 0.054	0.9460* p = 0.000	0.8251* p = 0.022	-0.6339 p = 0.063	0.5609 p = 0.074	-0.3739 p = 0.204	0.8715* p = 0.002	0.8265* p = 0.011

* $p < .05$

There were significant relationships between effectiveness and the linkage dimensions of awareness, formalization, influence, and resource dependence. This would seem to indicate some value in measuring linkages with a view to using the resulting information in decision-making for an effective organization.

Chapter VIII

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This has been a study of linkages within a network comprised of public and private sector organizations. A detailed instrument was used to measure several situational and structural dimensions of inter-organizational linkages within the network. Conclusions, implications, and recommendations for further study emanating from this study follow.

Conclusions

Four questions were posed in the form of objectives for the study. They form the framework for the study. Conclusions will be presented within the context of each of the four objectives.

Objective 1: To describe the linkages in a Cooperative Education program which involves both public and private sector organizations.

Situational and structural dimensions of linkages were measured statistically for two groups, the employers and the faculty. For purposes of this study employers were described as representing the private sector and faculty as represeting the public sector. There was some variation in the number of, and extent of linkage dimensions between the two groups.

The framework for the organizational assessment model presented by Van de Ven (Tables 3 and 4) is comprised of the two process dimensions, information flow and resource flow; four structural dimensions; formalization, structural complexity, centralization, and intensity; and by six situational factors, resource dependence, response to a problem, opportunity, or mandate; awareness; consensus; size, and domain

similarity. Van de Ven hypothesized that the structural dimensions of an interorganizational relationship can be largely explained by the six situational factors (Van de Ven, 1980:307).

In this study the situational factors measured were resource dependence, awareness, and consensus. The structural variables measured were amount, direction, and time spent in communication, ease of communication, formalization, and influence.

This study was conducted on a Cooperative Education program in its first year of operation. In recognition of the fact that the study took place in the initial stage of the network life cycle, conclusions will be limited to statements of relationships, not of degree of relationships. Causality is neither intended nor implied. It would be more appropriate to comment on the degree of the relationship after data have been collected over an extended period of time.

The conclusions will be expressed in the form of generalizations. The acceptability of these generalizations is limited to this study at this time.

Unlike the tentative generalizations formulated by Andrews (1980:2-9) in which he was able to generalize using symmetry of resource commitment as a basis, generalizations in this study are limited to identification of the most significant situational and structural linkage dimensions for each of the public and private sector agencies.

Generalizations regarding linkage dimensions in an interorganizational network, comprised of public sector and private sector organizations in its first year of operation, are as follows:

1. There are more structural variables related to situational variables for private sector agencies than there are for public sector agencies.
2. Resource dependence and consensus are the most significant situational variables for private sector agencies.
3. Awareness is the most significant situational variable for public sector agencies.
4. Influence is the most significant structural variable for public sector agencies.
5. Formalization and influence are the most significant structural variables for private sector agencies.

Objective 2: To determine the effectiveness of the program.

Specific questionnaire items regarding program effectiveness were asked of each stakeholder group. The items focused on effectiveness in terms of interactions and estimation of worthwhileness of the program at that time. All stakeholder groups with the exception of the faculty reported moderate to high levels of effectiveness.

This finding is reflective of an adequate level of satisfaction with the program as expressed by the four groups who are participants in the program by choice. They have vested interests in the success of the program and, at the stage of development of the program during which the study was conducted, believed it to be effective.

The faculty was not in as favorable a position to determine effectiveness since it was not privy to as much direct interaction with the program as were the other four groups.

The findings on effectiveness should be regarded as interim and the effectiveness variables should be measured at frequent intervals to facilitate effective decision-making regarding program policy, procedures, and deployment of objectives.

Objective 3: To explore the relationship between stakeholder objectives and perceived program effectiveness.

The priority of objectives held by individual stakeholder groups was measured for faculty, employers, and students. The only positive statistically significant correlation exists for employers and students between the objective "To provide a potential source of trained manpower to industry" and their perceptions of program effectiveness. The only other correlations involving effectiveness and program objectives were negative. This could be an indication that the objectives as stated were inadequate or that the network has already reached the stage of development identified by Benson (197:231) in his observation that objectives are important in the beginning of an organization but they recede in importance later.

A third possibility for the lack of correlations between objectives and effectiveness may be that it is too great a leap to expect correlations between objectives and effectiveness. Perhaps many intervening variables must be explored in greater detail first. The linkage dimensions may be some of these variables.

The pursuit of a relationship between objectives and effectiveness may have implied that a positive statement of effectiveness would indicate that the objectives for the program are being met. However, if a stakeholder has indicated what he feels are the most important program objectives for him (which is the way the question was worded), it does

not necessarily follow that his determination of extent of effectiveness is also an indication that objectives have been realized to the same extent.

The items regarding program effectiveness for this study are reflective of the first year of the relationship and are a statement regarding the status quo.

The program objectives identified as most important by the stakeholder groups are overall program objectives. These are objectives to which the program aspires. They are the reason for membership and the program.

Perhaps a more effective approach would have been to generate a list of goals for the first year of operation of the program and to seek correlations between the goals for the year and the effectiveness as perceived by stakeholder groups.

Objective 4: To explore the possible association between linkages and program effectiveness.

As indicated in Table 68, significant correlations existed for faculty between effectiveness and resource dependence, awareness, formalization and influence. Correlations existed for employers between effectiveness and resource dependence and influence. They existed for students between awareness and formalization. These findings lend some support to Van de Ven's hypothesis that "the effectiveness of an interagency network can be predicted from the four structural dimensions and the six situational factors" (Van de Ven, 1980:307).

It is a great leap to assume that knowledge of the linkage dimensions of an interorganizational network indicate the level of

effectiveness. Considerably more studies of linkages would have to be conducted to verify the assumption.

Implications

The conclusions and implications of this study are limited to this specific study at the time at which it was conducted. Subsequent studies could involve different respondents in every stakeholder group. This, along with the passage of time during which the organization would proceed along the organizational life-cycle, could result in variation in the extent of the linkage dimensions.

Van de Ven recognized that and suggested that the value of the organizational assessment instruments may be in applying them at regular intervals over a period of years. The present study is the first application of the instruments to the Cooperative Education program under study.

Implications for Organizational Theory

There are several implications in this study for the usefulness of a focus on linkages in an organizational assessment. The linkages provide a framework for the assessment. The linkage dimensions are categories which seem to be representative of the variables that have to be in place and that go on in interorganizational endeavors.

The focus on linkages does not necessarily limit the use of assessment methods to one type. The linkages are categories which facilitate the labelling of the entities to be considered. The technique used to measure the information in the categories should be a function of the skills of the assessor, the nature of the program being assessed, and of the resource available. A focus on linkages in an interorganizational relationship is valid since the relationship between participating

organizations is the essence of the interorganizational network (Van de Ven, 1980:300). The only other measurable entity of the network would be the individual organizations. An in-depth study of any or all of the organizations in the network would not tap the interactive nature inherent in a network relationship.

The inclusiveness of the linkage dimensions incorporates several aspects of organization theory. Theories and knowledge concerning organizational structure and processes have progressed from the early Tylerian views to the present recognition of less rigid yet functional temporary systems. The study of interorganizational linkages follows a natural evolution in organization theory. The environment of an organization was recognized as being significant to an organization with the advent of "systems" theory. As indicated by Guezkow in Chapter II, interactions between organizations involve interdependencies which may take the form of cooperation, or conflict when there is interference in the activities of the organization. This realization formed the foundation for a further line of thought concerning organizations in their environments. Not only were there interactions between organizations, these interactions were for different reasons. Marrett furthered the understanding by identifying five approaches to studying interorganizational relationships. This particular study of linkages is based on her "Relational Properties" approach. As previously reported in Chapter II, the "Relational "Properties" approach was useful in this study of interorganizational linkages between public sector organizations. The more recent contribution by Van de Ven which builds on Marrett's approaches by detailing situational and structural linkage dimensions and incorporating process

variables enhanced the study of linkage dimensions. Not only is it possible to measure the linkages as did Andrews by using global measures, new information is gained by measuring more finite dimensions of the linkages using the detailed Organizational Assessment Instrument developed by Van de Ven. Although, as was recognized in the present study, some questions may be deemed inappropriate to ask of private sector organizations, considerable information regarding the linkages is gained. Relative strengths of linkage dimensions in terms of significance can be identified, monitored, and used as information for decision-making in and for the network.

The contribution to organization theory by this study of linkage dimensions between public and private sector organizations in a network is the identification of significant dimensions for each of the stakeholder groups in the network. Further research in many similar networks is required to confirm or deny these findings before they can be regarded as any more than generalizations pertinent to one descriptive case study of one relatively small program in its first year of operation. However, there is an advantage to using this detailed approach. That is, by identifying the significant dimensions in detail there is sufficient information to make decisions which facilitate the development of the relationship in that relative strengths can be discerned and hence specific areas for improvement can be identified.

The transition from theory to application of the theory for practical purposes can be considered an advancement in the field of study. Caution is urged, however, against assuming that application of the instrument will provide an accurate reading of the total interorganizational picture. Interorganizational relationships can be measured along

the linkage dimensions used in this study. For example, communication is part of the intensity of the relationship, but it cannot be claimed, on the basis of these measures alone, that they provide the complete statement regarding the relationship. Additional information is needed. Some of this information may be gained by a "qualitative" study or by an examination of the product(s) of the relationship.

The implication from this study to the general body of organization theory is the transition from theory to application.

Implications for the Use of a Detailed Instrument

There are both advantages and disadvantages to the use of an extensive, detailed instrument in an organizational assessment. The obvious advantages to the use of a printed questionnaire are the extensive coverage of respondents and the adaptability of responses to statistical analysis. Another advantage is the aforementioned practical usefulness for program administrators of being able to identify specific aspects of the relationships about which to make program development decisions.

Several cautions are urged, however, in the use of the Organizational Assessment Instrument or one of a similar nature. Several of the respondents in the faculty stakeholder group expressed concern about the instrument. They questioned the appropriateness of the instrument for an evaluation. There seemed to be a lack of understanding as to what an evaluation should consist of. Some comments seemed to indicate a desire for only a summative evaluation. The concept of evaluation has different meaning for different groups of people. It may be that individuals with "human service" backgrounds are more familiar with the concepts of formative and summative evaluation and with the processes involved. If

this is the case, there is a need for a pre-evaluation component in which potential respondents are given information regarding evaluation.

Perhaps the most effective use of the instrument in terms of respondent acceptability would be to use it as a structured interview guide. The high cost in terms of human resources may prohibit such a research procedure. However, there may be some appropriateness for such an approach in a limited number of case studies.

The findings in this study gained by use of the detailed instrument are consistent with information gained by interviews with selected stakeholder group members prior to administration of the instrument. The preliminary interviews and questionnaires mentioned in Chapter III were necessary to adapt the general instrument to this specific program. The findings from the instrument gave substance to impressions and intuitions gained earlier. The instrument permits objectivity and it may be that more accurate replicability might be realized than by using less structured techniques of evaluation.

Implications for Program Administrators

The usefulness of the findings from this study for the Cooperative Education program administrators is in the increased amount of information available for decision-making on their part. There is an opportunity to practise realistic goal setting based on the findings. For example, contrary to the descriptions of ideal Cooperative Education programs as reported in Chapter II, the actual commitment of stakeholder groups varies with their objectives for the program and with their reasons for being in the program. Implications for program administrators regarding the deployment of resources exist in the findings that formalization, influence, and resource dependence are the most significant

linkage dimensions. It would seem appropriate for program administrators to continue to focus on these dimensions.

Frequent (once a year) intermittent application of the instrument is needed to detect changes in significance of linkage dimensions and to measure effectiveness of administrative decisions.

Recommendations for Further Study

1. Focus on any one of the linkage dimensions to answer specific questions. For instance, why do the communications dimensions not correlate positively and significantly with all the other linkage variables? If there was no communication, it could be hypothesized that there would be no relationship.

2. Conduct a longitudinal study using the Organizational Assessment Instruments at regular intervals. This has been suggested by Van de Ven, and it may indeed be the strength of the instrument. Because of its detailed nature and appropriateness for statistical analysis, a change in assessors should not result in a change of interpretation.

3. Conduct a study of the same linkage dimensions in the same program using research techniques other than the organizational assessment instruments. This would allow for triangulation of findings. Two possibilities are "thick description" of a few selected individuals in the program or the use of global measures such as those used by Andrews (1978).

4. Conduct a study focusing on the "product" of the program, namely, the students.

5. Focus a study on linkage dimensions for the stakeholder groups for which statistics were not generated in the present study, namely, program administrators and department chairmen.

Concluding Statement

All studies of interorganizational relationships should be done in recognition of the social and economic context within which the relationship exists.

Benson (19:241) noted that:

> The general conditions under which the network and its environment are linked, may undergo change of consequent impact upon the network. For example, such changing economic conditions as a recession may reduce the supply of resources and produce a reduction of cooperative ventures as agencies become increasingly conservative.
>
> Structural changes in the mode of societal organization, for example, toward more authoritative rule, may push all networks toward greater accountability and restrictiveness.

This study has been conducted on the linkages between public and private sector agencies in a province which, at the time of the study, was described as being in an economic recession. Findings of the study must be considered in recognition of that fact.

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APPENDIX A

Program Administrator Questionnaire

FACULTY OF ENGINEERING
UNIVERSITY OF ALBERTA

COOPERATIVE EDUCATION PROGRAM

PROGRAM ADMINISTRATOR QUESTIONNAIRE

WINTER, 1982

The Co-op office functions as the focal unit of the Cooperative Education program. This requires the maintenance of many relationships with other departments and levels within the University as well as outside of the University. These relationships exist for a variety of purposes, such as: obtaining money, personnel, equipment, and responding to or initiating administrative directives and rules.

The following is a picture of the units with which your office is perceived, by the evaluator, to interact. Please peruse it carefully and feel free to add to or delete from it as you see fit.

The purpose of this activity is to ensure inclusion of all relationships. There is no intention at this time to indicate magnitude, extent, or importance of the relationships.

Part I -- Background Information

CC
1-4
1

Name _____

Sex (1) _____ Female (2) _____ Male

4

Position in Co-op Program:

(1) _____ Director

(2) _____ Associate Director

5

(3) _____ Project Director

(4) _____ Coordinator

Length of Time in that Position:

(1) _____ 3 Months

(2) _____ 6 Months

(3) _____ 9 Months

(4) _____ 12 Months

(5) _____ 15 Months

(6) _____ 18 Months

(7) _____ 24 Months

(8) _____ 3 Years

(9) _____ 4 Years

(10) _____ 5 Years

6, 7

Part II

Of the many units identified in the diagram, five have been selected for which an analysis of relationships will be conducted. These five are; the Dean of Engineering, Engineering Department Chairmen, Engineering Faculty, Employers, and the Students. Your response to the following questions about the relationship between your office and these groups will be appreciated.

For purposes of simplicity, each of the groups are hence forth described as units.

		DEAN OF ENGINEERING		DEPARTMENT CHAIRMEN		ENGINEERING FACULTY		EMPLOYERS		STUDENTS		
		UNIT 1		UNIT 2		UNIT 3		UNIT 4		UNIT 5		
1.	PLEASE ANSWER THE FOLLOWING QUESTIONS FOR EACH UNIT INDIVIDUALLY BY WRITING IN THE APPROPRIATE COLUMN THE MOST ACCURATE NUMBER FROM THE ANSWER SCALE FOR EACH QUESTION. IF YOU DO NOT HAVE THE INFORMATION OR AN OPINION, PLEASE RESPOND WITH N/A.	1	2	1	2	1	2	1	2	1	2	8-17
	(a) Do you supervise this other unit in your organization's hierarchy?	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	
	(b) Do you formally report to this other unit in your organization's hierarchy?	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	17-26
	(c) Do you have a contractual relationship with this other unit?	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	27-36
	(d) Is it mandatory by government or trade regulations that you coordinate with this other unit?	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	37,46

	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
2. During the past six months, how much was your unit involved with this other unit for each of the following reasons: (use scale below)						46,50
(a) To receive or send work or clients (e.g., students, raw materials, or work objects)?	____	____	____	____	____	
(b) To receive or send resources (money, personnel, equipment, office space)?	____	____	____	____	____	51-55
(c) To receive or send technical assistance (e.g., consultation or staff services in functional areas)?	____	____	____	____	____	56-60
(d) To receive or send information for purposes of coordination, control, planning, or evaluation?	____	____	____	____	____	61-65

NOT AT ALL	A LITTLE	SOME-WHAT	QUITE A BIT	VERY MUCH
1	2	3	4	5

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
3.	To what extent have the terms of the relationship between your unit and this other unit:	Extent:	Extent:	Extent:	Extent:	Extent:	
	(a) Been explicitly verbalized or discussed?	____	____	____	____	____	66-70
	(b) Been written down in detail?	____	____	____	____	____	71-75
4.	For how many years has your unit been directly involved in some fashion with this other unit?	____ Yrs	____ Yrs	____ Yrs	____ Yrs	____ Yrs	76-80
5.	Prior to the past six months, to what extent has your unit had effective working relationships with this other unit? (Write best scale number in each column.)	Extent: ____	Extent: ____	Extent: ____	Extent: ____	Extent: ____	81-85

NO PRIOR CONTACT	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT
0	1	2	3	4	5

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
6.	For this other unit to accomplish its goals and responsibilities, how much does it need the services, resources, or support from your unit? NOT AT ALL (1) — VERY LITTLE (2) — SOME (3) — QUITE A BIT (4) — VERY MUCH (5)	___	___	___	___	___	2 3-7
7.	For your unit to accomplish its goals and responsibilities, how much do you need the services, resources, or support from this other units? (Use scale for Question 6.)	___	___	___	___	___	8-12
8.	How well informed are you about the specific goals and services of this other unit? NOT AT ALL (1) — LITTLE INFORMED (2) — SOMEHWAT INFORMED (3) — QUITE INFORMED (4) — VERY WELL INFORMED (5)	___	___	___	___	___	13,17

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
9.	How much say or influence does this other unit have on the internal operations of your unit? NONE (1) LITTLE (2) SOME (3) QUITE A BIT (4) VERY MUCH (5)	___	___	___	___	___	18-22
10.	How much say or influence does your unit have on the internal operations of this other unit? (Use scale for Question 9.)	___	___	___	___	___	23-27
11.	During the past year, how frequently have people in your unit communicated or been in contact with people in this other unit? NOT ONCE (0) 1-2 TIMES (1) ABOUT MONTHLY (2) ABOUT EVERY 2 WEEKS (3) ABOUT WEEKLY (4) ABOUT DAILY (5) MANY TIMES DAILY (6)	___	___	___	___	___	28,32

	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
12. Specifically, how frequently did your unit communicate with this other unit through each of the following ways during the past six months:						
(a) Through written letters, memos, or written reports of any kind?	____	____	____	____	____	33,37
(b) Through telephone calls?	____	____	____	____	____	38,42
(c) Through face-to-face discussions?	____	____	____	____	____	43-47
(d) Through group or committee meetings between three or more people from your unit and this other unit? (Use scale for Question 11.)	____	____	____	____	____	48-52
13. In general, what percent of all these communications with this other unit were initiated by people in your unit during the past six months? (Indicate percent)	____%	____%	____%	____%	____%	53-62
14. Overall, how much difficulty do you experience in getting ideas clearly across to individuals in this other unit when you communicate with them?	____	____	____	____	____	63-67

NO CONTACT	NO DIFFICULTY	LITTLE DIFFICULTY	SOME DIFFICULTY	QUITE A BIT	VERY MUCH
0	1	2	3	4	5

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
15.	When you wanted to communicate with individuals in this unit, how much difficulty have you had getting in touch with them? (Use scale for Question 14.)	___	___	___	___	___	68-72

16.	To what extent did your unit encounter interruptions or delays to the normal flows of work, resources, or services from or to this other unit during the past year? TO NO EXTENT (1) · LITTLE EXTENT (2) · SOME EXTENT (3) · MUCH EXTENT (4) · VERY GREAT EXTENT (5)	___	___	___	___	___	73,77

17.	During the past year, how often did problems arise in sending or receiving work, resources, or services to or from this other unit? NOT ONCE (1) · 1-2 TIMES (2) · ABOUT MONTHLY (3) · ABOUT WEEKLY (4) · ABOUT DAILY (5) · SEVERAL TIMES A DAY (6)	___	___	___	___	___	78-82

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
18.	To coordinate activities with this other unit during the past year, to what extent:						
	(a) Have standard operating procedures been established (e.g., rules, policies, forms, etc.)?	____	____	____	____	____	83-87
	(b) Are formal communication channels followed?	____	____	____	____	____	3 3-7

TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDER-ABLE EXTENT	GREAT EXTENT
1	2	3	4	5

19.	During the past year, how often were there disagreements or disputes between people in your unit and this other unit?	____	____	____	____	____	8-12

NOT ONCE	ABOUT ONCE A MONTH	ABOUT EVERY 2 WEEKS	ABOUT ONCE A WEEK	SEVERAL TIMES A WEEK	EVERY DAY
1	2	3	4	5	6

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
20.	When these disagreements or disputes occurred, how often were they handled in each of the following ways during the year:						
	(a) By ignoring or avoiding the issues?	____	____	____	____	____	13-17
	(b) By smoothing over the issues?	____	____	____	____	____	18-22
	(c) By bringing the issues out in the open and working them out among the parties involved?	____	____	____	____	____	23-27
	(d) By having a higher level manager or authority resolve the issues between the parties involved?	____	____	____	____	____	28-32

ALMOST NEVER	SELDOM	ABOUT HALF THE TIME	OFTEN	ALMOST ALWAYS
1	2	3	4	5

21.	How well are any differences worked out at this time between your unit and this other unit?	____	____	____	____	____	33-37

VERY POORLY	POORLY	ADEQUATELY	QUITE WELL	VERY WELL
1	2	3	4	5

TO CONCLUDE THIS SECTION, PLEASE ANSWER THE FOLLOWING QUESTIONS USING THE SCALE FOLLOWING QUESTION 28.

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
22.	To what extent has this unit carried out its responsibilities and commitments in regard to your unit during the past year?	___	___	___	___	___	38-42
23.	To what extent has your unit carried out it's responsibilities and commitments in regard to this other unit during the past year?	___	___	___	___	___	43-47
24.	To what extent do you feel the relationship between your unit and this other unit is productive?	___	___	___	___	___	48-52
25.	To what extent is the time and effort spent in developing and maintaining the relationship with this other unit worthwhile?	___	___	___	___	___	53-57
26.	Overall, to what extent were you satisfied with the relationship between your unit and this other unit during the past year?	___	___	___	___	___	58-62

		UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	
27.	During the past six months, to what extent has your unit changed or influenced the services or operations of this other unit?	____	____	____	____	____	63-67

28.	During the past six months, to what extent has this other unit changed or influenced the services or operations of your unit?	____	____	____	____	____	68-72

TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDER-ABLE EXTENT	GREAT EXTENT
1	2	3	4	5

PLEASE RESPOND TO QUESTIONS 1-5 FOR THE SPECIFIC INDIVIDUALS IDENTIFIED IN EACH COLUMN.

DEPARTMENT CHAIRMEN

MECHANICAL ENGINEERING	ELECTRICAL ENGINEERING	MINERAL ENGINEERING	CHEMICAL ENGINEERING	CIVIL ENGINEERING

1. How many years and months have you personally known the contact person in this other unit?

____ Years ____ Months	____ Years ____ Months	____ Years ____ Months	____ Years ____ Months	____ Years ____ Months

73-82

4

3-12

2. How well are you personally acquainted with the contact person in this other unit?

____	____	____	____	____

13-17

NO PERSONAL ACQUAINTANCE	NOT VERY WELL	SOMEWHAT WELL	QUITE WELL	VERY WELL
1	2	3	4	5

3. How much do you and this contact person agree or disagree on:

(a) The goal priorities of your unit?

____	____	____	____	____

18-22

(b) The specific ways work is done or services are provided by your unit?

____	____	____	____	____

23-27

(c) The specfic terms of the relationship between your unit and this other unit?

____	____	____	____	____

28-32

DON'T KNOW	DISAGREE MUCH	AGREE A LITTLE	AGREE SOMEWHAT	AGREE QUITE A BIT	AGREE VERY MUCH
0	1	2	3	4	5

DEPARTMENT CHAIRMEN

	MECHANICAL ENGINEERING	ELECTRICAL ENGINEERING	MINERAL ENGINEERING	CHEMICAL ENGINEERING	CIVIL ENGINEERING	
4. To what extent did individuals in this other unit hinder your unit in performing its functions during the past six months?	____	____	____	____	____	33-37

DON'T KNOW	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSID-ERABLE EXTENT	GREAT EXTENT
0	1	2	3	4	5

5. Consider now the equality of the give-and-take relationship with each unit. Compared to other units that you are involved with, how fair do you feel are the "payoffs" to your unit from this unit?	____	____	____	____	____	38-42

WE GET MUCH LESS THAN WE OUGHT	WE GET SOMEWHAT LESS THAN WE OUGHT	BALANCED	WE GET SOMEWHAT MORE THAN WE OUGHT	WE GET MUCH MORE THAN WE OUGHT
1	2	3	4	5

Part IV

THESE FIVE QUESTIONS ARE THE SAME AS THOSE IN PART III, HOWEVER, THIS TIME PLEASE IDENTIFY FIVE REPRESENTATIVE EMPLOYERS BY COMPANY NAME AND RESPOND ACCORDINGLY.

	EMPLOYERS					
	NAME	NAME	NAME	NAME	NAME	
1. How many years and months have you personally known the contact person in this other unit?	____ Years	____ Years	____ Years	____ Years	____ Years	43-47
	____ Months	____ Months	____ Months	____ Months	____ Months	48-52
2. How well are you personally acquainted with the contact person in this other unit?	____	____	____	____	____	53-57
3. How much do you and this contact person agree or disagree on:						
(a) The goal priorities of your unit?	____	____	____	____	____	58-62
(b) The specific ways work is done or services are provided by your unit?	____	____	____	____	____	63-67

NO PERSONAL ACQUAINTANCE = 1; NOT VERY WELL = 2; SOMEWHAT WELL = 3; QUITE WELL = 4; VERY WELL = 5

continued . . .

	EMPLOYERS					
	NAME	NAME	NAME	NAME	NAME	
3. (c) The specific terms of the relationship between your unit and this other unit?	____	____	____	____	____	68-72

DON'T KNOW	DISAGREE MUCH	AGREE A LITTLE	AGREE SOMEWHAT	AGREE QUITE A BIT	AGREE VERY MUCH
0	1	2	3	4	5

4. To what extent did individuals in this other unit hinder your unit in performing its functions during the past six months?	____	____	____	____	____	73-77

DON'T KNOW	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT
0	1	2	3	4	5

5. Consider now the equality of the give-and-take relationship with each unit. Compared to other units that you are involved with, how fair do you feel are the "payoffs" to your unit from this unit?	____	____	____	____	____	78-82

WE GET MUCH LESS THAN WE OUGHT	WE GET SOMEWHAT LESS THAN WE OUGHT	BALANCED	WE GET SOMEWHAT MORE THAN WE OUGHT	WE GET MUCH MORE THAN WE OUGHT
1	2	3	4	5

Thank you for your kind assistance in participating in this study.

If you have any comments you would like to make about the Co-op program / program administrator relationship, please do so below.

Comments

If you would care to communicate directly with the program evaluator, I can be reached at 432-4159. Please feel free to call me.

Laura Mann
Project Evaluator

APPENDIX B

Letter Accompanying Questionnaire to Engineering Chairmen

FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL
ADMINISTRATION

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA
T6G 2G5

March 22, 1982

Engineering Cooperative Studies
Evaluation
11045 - 90 Avenue
Edmonton, Alberta
T6G 2G8

Dear Engineering Department Chairman:

We are the external evaluators of the Cooperative Education program in the Faculty of Engineering and we would greatly appreciate your responses to the enclosed questionnaire.

Please take this opportunity to comment on the program, whether you are actively involved in it or not.

We thank you in anticipation of your cooperation.

Sincerely,

D. A. MacKay

Enclosure

DAM:ljw

APPENDIX C

Department Chairmen Questionnaire

FACULTY OF ENGINEERING
UNIVERSITY OF ALBERTA

COOPERATIVE EDUCATION PROGRAM

DEPARTMENT CHAIRMEN QUESTIONNAIRE

WINTER, 1982

FACULTY OF ENGINEERING DEPARTMENT CHAIRMEN

As a part of the evaluation of the Co-op program, we are studying the linkages between stakeholders in the program, namely, Faculty, Students, Employers, and Program Administrators. We would greatly appreciate your responses to the following questions.

Part I -- Background Information

CC 1-2

Name _____

Sex (1) _____ Female (2) _____ Male

3

Name of Department of which you are Chairman.

(1) _____ Mechanical Engineering

(2) _____ Chemical Engineering

(3) _____ Mineral Engineering

(4) _____ Electrical Engineering

(5) _____ Civil Engineering

4

Length of Time in that Position.

(1) _____ 6 Months (6) _____ 5 Years

(2) _____ 1 Year (7) _____ 6-8 Years

(3) _____ 2 Years (8) _____ 9-10 Years

(4) _____ 3 Years (9) _____ 11-15 Years

(5) _____ 4 Years (10) _____ More than 15 Years

5-6

Part II

Following are some objectives which have been identified for Cooperative Education programs. Please select the three which are of most importance to you. Number them in order of importance, (1) most important, (2) second most important, and (3) third most important.

_____ To provide a potential source of trained manpower to industry.

_____ To provide students with technical skills and experience through specific career-related co-op assignments.

_____ To enhance opportunities for mutual understanding and cooperation between industry and the faculty. 7-8

_____ To provide opportunities for companies to assess students and vice versa. 9-10

_____ To provide opportunities for career exploration by students. 11-12

_____ To enhance university courses via input from industry.

_____ To equip students with the skills necessary for securing employment.

_____ To give students an introduction to the work world and some practical "human-relations" training.

_____ To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.

_____ To provide additional opportunities for minority and women students through using co-op assignments to break down traditional barriers.

Part III

1. Is your department involved in the Co-op program? YES _____ NO _____

2. If not, will it be in the future? YES _____ NO _____
   If yes, please indicate anticipated date. _____

PLEASE RESPOND TO THE REMAINING QUESTIONS TO THE EXTENT THAT YOU ARE ABLE:

		NO PERSONAL ACQUAINTANCE	NOT VERY WELL	SOMEWHAT WELL	QUITE WELL	VERY WELL	
3.	How well are you acquainted with the director of the Co-op program?	1	2	3	4	5	13

		DON'T KNOW	DISAGREE MUCH	AGREE A LITTLE	AGREE SOMEWHAT	AGREE QUITE A BIT	AGREE VERY MUCH	
4.	How much do you and the director agree or disagree on:							
	a. the goal priorities of your department?	0	1	2	3	4	5	14
	b. the specific ways work is done or services are provided by your department to the Co-op program?	0	1	2	3	4	5	15
	c. the specific terms of the relationship between your department and the Co-op program?	0	1	2	3	4	5	16

5.	How well informed are you about the specific goals and services of the Co-op program?	NOT AT ALL 1	LITTLE INFORMED 2	SOMEWHAT INFORMED 3	QUITE INFORMED 4	VERY WELL INFORMED 5	17

6.	Prior to the past year, to what extent has your department had effective working relationships with the Co-op program?	NO PRIOR CONTACT 0	TO NO EXTENT 1	LITTLE EXTENT 2	SOME EXTENT 3	CONSIDERABLE EXTENT 4	GREAT EXTENT 5	18

7.	During the past year, how much was your department involved with the Co-op program to receive or send information for the purposes of coordination, control, planning, or evaluation?	NOT AT ALL 1	A LITTLE 2	SOMEWHAT 3	QUITE A BIT 4	VERY MUCH 5		19

8.	Consider now the equality of the give and take relationship with the Co-op program. How fair do you feel are the "payoffs" to your department from this program?	DON'T KNOW 0	WE GET MUCH LESS THAN WE OUGHT 1	WE GET SOMEWHAT LESS THAN WE OUGHT 2	BALANCED 3	WE GET SOMEWHAT MORE THAN WE OUGHT 4	WE GET MUCH MORE THAN WE OUGHT 5		20

		DON'T KNOW	NOT AT ALL	VERY LITTLE	SOME	QUITE A BIT	VERY MUCH	
9.	For the Co-op program to accomplish its goals and responsibilities, how much does it need the services, resources, or support from your department?	0	1	2	3	4	5	21
10.	For your department to accomplish its goals and responsibilities, how much do you need the services, resources or support from the Co-op program? (Use scale from Question 9.)	0	1	2	3	4	5	22

		NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
11.	How much say or influence does the Co-op program have on the internal operations of your department?	1	2	3	4	5	23
12.	How much say or influence does your department have on the internal operations of the Co-op program? (Use scale from Question 11.)	1	2	3	4	5	24

		TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
13.	To what extent have the terms of the relationship between your department and the Co-op program:						
	a. been explicitly verbalized or discussed?	1	2	3	4	5	25
	b. been written down in detail?	1	2	3	4	5	26

14.	During the past year, what percent of your total working hours, do you estimate, did you spend on matters directly related to the operations, work, or activities of the Co-op program?	Indicate percent -- _____ %	27-28

		NOT ONCE	1-2 TIMES	ABOUT MONTHLY	ABOUT EVERY 2 WEEKS	ABOUT WEEKLY	ABOUT DAILY	MANY TIMES DAILY	
15.	During the past year, how frequently have people in your department communicated or been in contact with people in the Co-op program office?	0	1	2	3	4	5	6	29

		NO CONTACT	NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
16.	When you want to communicate with individuals in the Co-op, how much difficulty have you had in getting in touch with them?	0	1	2	3	4	5	30

17.	Overall, how much difficulty do you experience in getting ideas clearly across to individuals in the Co-op when you communicate to them? (Use scale in Question 16.)	0	1	2	3	4	5	31

		NOT ONCE	ABOUT ONCE A MONTH	ABOUT EVERY 2 WEEKS	ABOUT ONCE A WEEK	SEVERAL TIMES A WEEK	EVERY DAY	
18.	During the past year, how often were there disagreements or disputes between people in your department and the Co-op program?	1	2	3	4	5	6	32

		VERY POORLY	POORLY	ADEQUATELY	QUITE WELL	VERY WELL	
19.	How well are any differences worked out at this time between your department and the Co-op program?	1	2	3	4	5	33

		NOT VERY IMPORTANT	SOMEWHAT IMPORTANT	QUITE IMPORTANT	VERY IMPORTANT	ABSOLUTELY CRUCIAL	
20.	Overall, how important was the Co-op program in attaining the goals of your department during the past year?	1	2	3	4	5	34

		TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
21.	To what extent has the Co-op carried out its responsibilities and commitments in regard to your department during the past year?	1	2	3	4	5	35
22.	To what extent has your department carried out your responsibilities and commitments in regard to the Co-op during the past year?	1	2	3	4	5	36
23.	To what extent do you feel the relationship between your department and the Co-op is productive?	1	2	3	4	5	37
24.	To what extent is the time and effort spent in developing and maintaining the relationship with the Co-op program worthwhile?	1	2	3	4	5	38
25.	Overall, to what extent are you satisfied with the relationship between your department and the Co-op program during the year?	1	2	3	4	5	39
26.	During the past year, to what extent has your department changed or influenced the services or operations of the Co-op program?	1	2	3	4	5	40
27.	During the past year, to what extent has the Co-op changed or influenced the services or operations of your department?	1	2	3	4	5	41

Thank you for your kind assistance in participating in this study.

If you have any comments you would like to make about the Co-op program/department relationship, please do so below.

Comments

If you would care to communicate directly with the program evaluator, I can be reached at 432-4159. Please feel free to call me.

Laura Mann
Project Evaluator

APPENDIX D

Letter Accompanying Questionnaire to Engineering Faculty

FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL
ADMINISTRATION

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA
T6G 2G5

March 22, 1982

Engineering Cooperative Studies
Evaluation
11045 - 90 Avenue
Edmonton, Alberta
T6G 2G8

Dear Engineering Faculty Member:

We are the external evaluators of the Cooperative Education program in the Faculty of Engineering and we would greatly appreciate your responses to the enclosed questionnaire.

Please take this opportunity to comment on the program, whether you are actively involved in it or not.

We thank you in anticipation of your cooperation.

Sincerely,

D. A. MacKay

Enclosure

DAM:ljw

APPENDIX E

Faculty Questionnaire

FACULTY OF ENGINEERING
UNIVERSITY OF ALBERTA

COOPERATIVE EDUCATION PROGRAM

FACULTY QUESTIONNAIRE

WINTER, 1982

FACULTY

As a member of the engineering faculty, you may or may not have been involved with the Cooperative Education program. However, we, the program evaluators, would greatly appreciate your responses to the following questions.

Please read through this questionnaire and answer as many questions as are applicable.

Your individual responses will not be identifiable and anonymity is assured.

Part I -- Background Information

CC
1-2

Sex (1) _____ Female (2) _____ Male

3

Name of Engineering Department in which you are employed.

(1) _____ Mechancial

(2) _____ Chemical

(3) _____ Mineral

4

(4) _____ Electrical

(5) _____ Civil

How many years have you been in that Department?

(1) _____ One-half year

(2) _____ 1 year

(3) _____ 2 years

(4) _____ 3 years

(5) _____ 4 years

5-6

(6) _____ 5 years

(7) _____ 6-8 years

(8) _____ 9-10 years

(9) _____ 11-15 years

(10) _____ More than 15 years

Part II

Following are some objectives which have been identified for Cooperative Education programs. Please select the three which are of most importance to you. Number them in order of importance, (1) most important, (2) second most important, and (3) third most important.

_____ To provide a potential source of trained manpower to industry.

_____ To provide students with technical skills and experience through specific career-related co-op assignments.

_____ To enhance opportunities for mutual understanding and cooperation between industry and the faculty. 7-8

_____ To provide opportunities for companies to assess students and vice versa. 9-10

_____ To provide opportunities for career exploration by students. 11-12

_____ To enhance university courses via input from industry.

_____ To equip students with the skills necessary for securing employment.

_____ To give students an introduction to the work world and some practical "human-relations" training.

_____ To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.

_____ To provide additional opportunities for minority and women students through using co-op assignments to break down traditional barriers.

	DON'T KNOW	NONE	A FEW	SOME	MANY	ALL ARE IN CO-OP	
1. Do you teach any students who are in the Co-op program?	0	1	2	3	4	5	13

	DON'T KNOW	THE DEAN	YOUR DEPT. CHAIRMAN	A CO-OP PLACEMENT OFFICER	A CO-OP PROGRAM ADMINISTRATOR	A STU-DENT	
2. If you required information about the Co-op program, who would you contact first?	0	1	2	3	4	5	14

	NO PERSONAL ACQUAINTANCE	NOT VERY WELL	SOMEWHAT WELL	QUITE WELL	VERY WELL	
3. How well are you personally acquainted with the director of the Co-op program?	1	2	3	4	5	15

	NOT AT ALL	LITTLE INFORMED	SOMEWHAT INFORMED	QUITE INFORMED	VERY WELL INFORMED	
4. How well informed are you about the specific goals and services of the Co-op program?	1	2	3	4	5	16

	DON'T KNOW	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
5. In your opinion, prior to the past year, to what extent has your department had effective working relationships with the Co-op program?	1	2	3	4	5	6	17

	NOT AT ALL	A LITTLE	SOMEWHAT	QUITE A BIT	VERY MUCH	
6. During the past year, how much was your department involved with the Co-op program to receive or send information for the purposes of coordination, control, planning, or evaluation?	1	2	3	4	5	18

	DON'T KNOW	WE GET MUCH LESS THAN WE OUGHT	WE GET SOMEWHAT LESS THAN WE OUGHT	BALANCED	WE GET SOMEWHAT MORE THAN WE OUGHT	WE GET MUCH MORE THAN WE OUGHT	
7. Consider now the equality of the give and take relationship with the Co-op program. How fair do you feel are the "payoffs" to your department from this program?	0	1	2	3	4	5	19

	DON'T KNOW	NOT AT ALL	VERY LITTLE	SOME	QUITE A BIT	VERY MUCH	
8. For the Co-op program to accomplish its goals and responsibilities, how much does it need the services, resources, or support from your department?	0	1	2	3	4	5	20
9. For you to accomplish your goals and responsibilities in your role as a faculty members, how much do you need the services, resources, or support from the Co-op program?	0	1	2	3	4	5	21

	NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
10. How much say or influence does the Co-op program have on the way you perform your role or on the content you teach?	1	2	3	4	5	22

	NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
11. How much say or influence do you have on the internal operation of the Co-op program?	1	2	3	4	5	23

	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
12. To what extent have the terms of the relationship between your department and the Co-op program:						
a. been explicitly verbalized or discussed?	1	2	3	4	5	24
b. been written down in detail?	1	2	3	4	5	25

13. During the past year, what percent of your total working hours did you spend on matters directly related to the operations, work, or activities of the Co-op program?

Indicate percent -- _____ % 26-27

	NOT ONCE	1-2 TIMES	ABOUT MONTHLY	ABOUT EVERY 2 WEEKS	ABOUT WEEKLY	ABOUT DAILY	MANY TIMES DAILY	
14. During the past year, please estimate how frequently have people in your department communicated or been in contact with people in the Co-op program office?	0	1	2	3	4	5	6	28

	NO CONTACT	NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
15. When you want to communicate with individuals in the Co-op, how much difficulty have you had getting in touch with them?	0	1	2	3	4	5	29

	NO CONTACT	NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
16. Overall, how much difficulty do you experience in getting ideas clearly across to individuals in the Co-op when you communicate with them?	0	1	2	3	4	5	30

	NOT ONCE	ABOUT ONCE A MONTH	ABOUT EVERY 2 WEEKS	ABOUT ONCE A WEEK	SEVERAL TIMES A WEEK	EVERY DAY	
17. During the past year, how often were there disagreements or disputes between people in your department and the Co-op program?	1	2	3	4	5	6	31

	VERY POORLY	POORLY	ADEQUATELY	QUITE WELL	VERY WELL	
18. How well are any differences worked out at this time between your department and the Co-op program?	1	2	3	4	5	32

	NOT VERY IMPORTANT	SOMEWHAT IMPORTANT	QUITE IMPORTANT	VERY IMPORTANT	ABSOLUTELY CRUCIAL	
19. Overall, how important was the Co-op program in attaining the goals of your department during the past year?	1	2	3	4	5	33

	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
20. To what extent has the Co-op carried out its responsibilities and commitments in regard to your department during the past year?	1	2	3	4	5	34

	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
21. To what extent has your department carried out your responsibilities and commitments in regard to the Co-op program during the past year?	1	2	3	4	5	35
22. To what extent do you feel the relationship between your department and the Co-op program is productive?	1	2	3	4	5	36
23. To what extent is the time and effort spent in developing and maintaining the relationship with the Co-op program worthwhile?	1	2	3	4	5	37
24. Overall, to what extent are you satisfied with the relationship between your department and the Co-op program during the year?	1	2	3	4	5	38
25. During the past year, to what extent has your department changed or influenced the services or operations of the Co-op program?	1	2	3	4	5	39
26. During the past year, to what extent has the Co-op changed or influenced the services or operations of your department?	1	2	3	4	5	40
27. To what extent is your input sought in policy decisions affecting the Co-op program?	1	2	3	4	5	41
28. To what extent do you feel that the concept of Co-op education is compatible with the purpose of the Faculty of Engineering?	1	2	3	4	5	42

	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
29. To what extent do you feel that you endorse the Co-op program to students?	1	2	3	4	5	43
30. To what extent has the Co-op program had any noticeable impact on the curriculum?	1	2	3	4	5	44
31. To what extent were you involved in the planning and design of the Co-op program?	1	2	3	4	5	45
32. To what extent do you attempt to integrate the learning acquired outside the classroom with that presented in the classroom?	1	2	3	4	5	46

Thank you for your kind assistance in participating in this study.

If you have any comments you would like to make about the Co-op program/department relationship, please do so below.

Comments

If you would care to communicate directly with the program evaluator, I can be reached at 432-4159. Please feel free to call me.

Laura Mann
Project Evaluator

APPENDIX F

Letter Accompanying Questionnaire to Employers

FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL
ADMINISTRATION

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA
T6G 2G5

March 22, 1982

Engineering Cooperative Studies
Evaluation
11045 - 90 Avenue
Edmonton, Alberta
T6G 2G8

Dear Sir:

We are the external evaluators of the Cooperative Education program in the Faculty of Engineering and would greatly appreciate your responses to the enclosed questionnaire.

This questionnaire is supplementary to the small one you may have received earlier this year.

Please take this opportunity to comment on the program.

Your input is important.

We thank you in anticipation of your cooperation.

Sincerely,

D. A. MacKay

Enclosure

DAM:ljw

APPENDIX G

Employer's Questionnaire

FACULTY OF ENGINEERING
UNIVERSITY OF ALBERTA

COOPERATIVE EDUCATION PROGRAM

EMPLOYER QUESTIONNAIRE

WINTER, 1982

EMPLOYERS

You have been identified by the Co-op office as the contact person for your company regarding the University of Alberta Cooperative Education program.

As part of the evaluation of the program, we are studying the nature of the relationships between the stakeholders in the program, namely, the students, faculty, Co-op office and employers, and, to that end, would very much appreciate having your responses to the following questions.

Your individual responses will not be identifiable and anonymity is assured.

Part I -- Background Information

CC 1-2

Check which of the following best describes your company.

_____ Education and Related Services

_____ Crude Petroleum and Natural Gas

_____ Manufacturing

_____ General Contractor, Construction

_____ Public Administration

_____ Engineering and Science Services

_____ Transportation and Other Utilities

_____ Communications

2

Your Position in the Company. _____

3

How long, to the best of your knowledge, has your company been involved in Cooperative Education programs?

(1) _____ 6 Months

(2) _____ 1 Year

(3) _____ 2 Years

(4) _____ 3 Years

(5) _____ 4 Years

(6) _____ 5 Years

(7) _____ 6-10 Years

(8) _____ 11-15 Years

(9) _____ 16-20 Years

4

How long has your company been involved with the U of A Co-op program?

(1) _____ 1 Month

(2) _____ 3 Months

(3) _____ 6 Months

(4) _____ 9 Months

(5) _____ 12 Months

(6) _____ 18 Months

5

Part II

Following are some objectives which have been identified for Cooperative Education programs. Please select the three which are of most importance to you. Number them in order of importance, (1) most important, (2) second most important, and (3) third most important.

_____ To provide a potential source of trained manpower to industry.

_____ To provide student with technical skills and experience through specific career-related co-op assignments.

_____ To enhance opportunities for mutual understanding and cooperation between industry and the faculty.

_____ To provide opportunities for companies to assess students and vice versa. 6-7

_____ To provide opportunities for career exploration by students. 8-9

_____ To enhance university courses via input from industry. 10-11

_____ To equip students with the skills necessary for securing employment.

_____ To give students an introduction to the work world and some practical "human-relations" training.

_____ To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.

_____ To provide additional opportunities for minority and women students through using co-op assignments to break down traditional barriers.

CC

1. Who is your contact person in the Co-op program?

Name _____ Position _____

	NO PERSONAL ACQUAINTANCE	NOT VERY WELL	SOMEWHAT WELL	QUITE WELL	VERY WELL	
2. How well are you personally acquainted with the contact person in the Co-op program?	1	2	3	4	5	12

	DON'T KNOW	DISAGREE MUCH	AGREE A LITTLE	AGREE SOMEWHAT	AGREE QUITE A BIT	AGREE VERY MUCH	
3. How much do you and this contact person agree or disagree on:							
a. the goal priorities of your company vis a vis the Co-op program?	0	1	2	3	4	5	13
b. the specific ways work is done or services are provided by your company to the Co-op program?	0	1	2	3	4	5	14
c. the specific terms of the relationship between your company and the Co-op program?	0	1	2	3	4	5	15

	NOT AT ALL	LITTLE INFORMED	SOMEWHAT INFORMED	QUITE INFORMED	VERY WELL INFORMED	
4. How well informed are you about the specific goals and services of the Co-op program?	1	2	3	4	5	16

		NO PRIOR CONTACT	TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
5.	Prior to the past year, to what extent has your company had effective working relationships with the Co-op program?	0	1	2	3	4	5	17

		NOT AT ALL	A LITTLE	SOMEWHAT	QUITE A BIT	VERY MUCH	
6.	During the past year how much was your company involved with the Co-op program for each of the following purposes:						
	a. to receive and employ students?	1	2	3	4	5	18
	b. to receive or send information for the purposes of coordination, control, planning, or evaluation?	1	2	3	4	5	19

		WE GET MUCH LESS THAN WE OUGHT	WE GET SOMEWHAT LESS THAN WE OUGHT	BALANCED	WE GET SOMEWHAT MORE THAN WE OUGHT	WE GET MUCH MORE THAN WE OUGHT	
7.	Consider now the equality of the give-and-take relationship with the Co-op program. How fair do you feel are the "payoffs" to your company from this program?	1	2	3	4	5	20

		NOT AT ALL	VERY LITTLE	SOME	QUITE A BIT	VERY MUCH	
8.	For the Co-op program to accomplish its goals and responsibilities, how much does it need the services, resources, or support from your company?	1	2	3	4	5	21
9.	For your company to accomplish its own goals and responsibilities, how much do you need the services, resources, or support from the Co-op program? (Use scale from Question 8.)	1	2	3	4	5	22
		NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
10.	How much say or influence does the Co-op have on the internal operations of your company?	1	2	3	4	5	23
11.	How much say or influence does your company have on the internal operations of the Co-op? (Use scale from Question 10.)	1	2	3	4	5	24
		TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
12.	To what extent have the terms of the relationship between your company and the Co-op program:						
	a. been explicitly verbalized or discussed?	1	2	3	4	5	25
	b. been written down in detail?	1	2	3	4	5	26

13.	During the past year, roughly what percent of your total working hours did you spend on matters directly related to the operations, work, or activities of the Co-op program?	Please indicate your estimate in percentage -- _____%	27-28

		NOT ONCE	1-2 TIMES	ABOUT MONTHLY	ABOUT EVERY 2 WEEKS	ABOUT WEEKLY	ABOUT DAILY	
14.	During the past year, how frequently have people in your company communicated with, or been in contact with, people in the Co-op program office?	0	1	2	3	4	5	29

		NO CONTACT	NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
15.	When you want to communicate with individuals in the Co-op program, how much difficulty have you had getting in touch with them?	0	1	2	3	4	5	30
16.	Overall, how much difficulty do you experience in getting ideas clearly across to individuals in the Co-op administration office when you communicate to them? (Use scale in Question 15.)	0	1	2	3	4	5	31

		NOT ONCE	ONCE A MONTH	ABOUT EVERY 2 WEEKS	ABOUT ONCE A WEEK	SEVERAL TIMES A WEEK	
17.	During the past year, how often were there disagreements or disputes between people in your company and administrators of the Co-op program?	1	2	3	4	5	32

		VERY POORLY	POORLY	ADEQUATELY	QUITE WELL	VERY WELL	
18.	How well are any differences worked out at this time between your company and the Co-op program?	1	2	3	4	5	33

		NOT VERY IMPORTANT	SOMEWHAT IMPORTANT	QUITE IMPORTANT	VERY IMPORTANT	ABSOLUTELY CRUCIAL	
19.	Overall, how important was the Co-op program in attaining the goals of your company during the past year?	1	2	3	4	5	34

		TO NO EXTENT	LITTLE EXTENT	SOME EXTENT	CONSIDERABLE EXTENT	GREAT EXTENT	
20.	To what extent has the Co-op program carried out its responsibilities and commitments in regard to your company during the past year?	1	2	3	4	5	35
21	To what extent has your company carried out your responsibilities and commitments in regard to the Co-op program during the past year?	1	2	3	4	5	36
22.	To what extent do you feel the relationship between your company and the Co-op program is productive?	1	2	3	4	5	37
23.	To what extent is the time and effort spent in developing and maintaining the relationship with the Co-op program worthwhile?	1	2	3	4	5	38
24.	Overall, to what extent are you satisfied with the relationship between your company and the Co-op program during the year?	1	2	3	4	5	39
25.	During the past year, to what extent has your company changed or influenced the services or operations of the Co-op program?	1	2	3	4	5	40
26.	During the past year, to what extent has the Co-op changed or influenced the services or operations of your company?	1	2	3	4	5	41

Thank you for your kind assistance in participating in this study.

If you have any comments you would like to make about the Co-op program/employer relationship, please do so below.

Comments

If you would care to communicate directly with the program evaluator, I can be reached at 432-4159. Please feel free to call me.

Laura Mann
Project Evaluator

APPENDIX H

Letter Accompanying Questionnaire to Students

FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL
ADMINISTRATION

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA
T6G 2G5

March 22, 1982

Engineering Cooperative Studies
Evaluation
11045 - 90 Avenue
Edmonton, Alberta
T6G 2G8

Dear Cooperative Education Program Student:

Enclosed please find a questionnaire which is part of the Cooperative Education Evaluation Project. This questionnaire is supplementary to the one you may have completed in the fall and to the personal interview you may have had with Laura Mann, project evaluator.

It is important that this be filled out by you. The findings will contribute to the improvement of the program.

Your input is important.

Thank you for your cooperation.

Sincerely,

D. A. MacKay

Enclosure

DAM:ljw

APPENDIX I

Student's Questionnaire

FACULTY OF ENGINEERING
UNIVERSITY OF ALBERTA

COOPERATIVE EDUCATION PROGRAM

STUDENT QUESTIONNAIRE

WINTER, 1982

As part of the evaluation of the Cooperative Education program, we would appreciate your responses to the following questions. One purpose of the questionnaire is specifically to measure the relationship between you, the student, and the other stakeholders in the program, namely, the Co-op office, the Engineering Faculty, and the Employers. Another is to assess the effectiveness of the program.

Your individual responses will not be identifiable and anonymity is assured.

Part I -- Background Information

CC
1-2

1. Sex (1) _____ Female (2) _____ Male

3

2. Age _____

4-5

3. Engineering area in which you are majoring:

(1) _____ Mechanical

(2) _____ Civil

(3) _____ Electrical

(4) _____ Chemical

(5) _____ Mineral

6

4. Year in which you joined the Co-op program.

19 _____

7-8

5. (1) _____ Group A (2) _____ Group B

9

6. Are you presently at:

(1) _____ University

(2) _____ Work

10

Part II

Following are some objectives which have been identified for Cooperative Education programs. Please select the three which are of most importance to you. Number them in order of importance, (1) most important, (2) second most important, and (3) third most important.

_____ To provide a potential source of trained manpower to industry.

_____ To provide student with technical skills and experience through specific career-related co-op assignments.

_____ To enhance opportunities for mutual understanding and cooperation between industry and the faculty.

_____ To provide opportunities for companies to assess students and vice versa. 11-12

_____ To provide opportunities for career exploration by students. 13-14

_____ To enhance university courses via input from industry. 15-16

_____ To equip students with the skills necessary for securing employment.

_____ To give students an introduction to the work world and some practical "human-relations" training.

_____ To give students from low-income families an opportunity to attend university by partially covering costs through cooperative job earnings.

_____ To provide additional opportunities for minority and women students through using co-op assignments to break down traditional barriers.

1. Who is your contact person in the Co-op office?

Name _____ Position _____

2. How well are you personally acquainted with this contact person?

NO PERSONAL ACQUAINTANCE	NOT VERY WELL	SOMEWHAT WELL	QUITE WELL	VERY WELL	
1	2	3	4	5	17

3. During the past year, how often were you in contact with the Co-op office by personal visit, telephone, or written communication?

NEVER	ONCE A MONTH	ONCE EVERY 2 WEEKS	ONCE A WEEK	TWICE A WEEK	DAILY	
0	1	2	3	4	5	18

4. When you have wanted to communicate with individuals in the Co-op office, how much difficulty have you had in getting in touch with them?

NO CONTACT	NONE	LITTLE	SOME	QUITE A BIT	VERY MUCH	
0	1	2	3	4	5	19

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